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CLINICAL ASPECTS

OF

SYPHILITIC NERVOUS AFFECTIONS

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CLINICAL ASPECTS

OF

SYPHILITIC NERVOUS AFFECTIONS

BY

THOMAS BUZZARD, M.D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS IN LONDON; PHYSICIAN TO THE NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.

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PREFACE.

THE object sought to be attained in the publication of this work is to describe simply and concisely the clinical characters which the author has found of most value in marking the syphilitic nature of certain nervous disorders. To aid this description he has added a series of cases, having selected for the purpose from those which have come under his personal observation in hospital and private practice such as seemed best fitted to illustrate the numerous phases of these affections. Many of the cases, as well as a small portion of the commentary, have already appeared in the 'Lancet,'[1] but it is hoped that the subject will be found

[1] Dec. 3rd, 1870; March 11th, 1871; February to May, 1873.

much more amply treated in the following pages than was possible in the limited space afforded by the columns of a weekly journal.

For obvious reasons, the social status, and other circumstances which might possibly serve to identify the patients whose cases are described, have been for the most part omitted.

In the chapter on Pathology and Morbid Anatomy the author has largely availed himself of the writings of several continental observers; and in case the frequent references to their works in the footnotes are not sufficient to indicate how much he owes to them, he desires here to acknowledge expressly his great obligations to the scientific labours of Virchow, Zeissl, and Lancereaux. If he has referred more frequently to the writings of German and French authorities than to those of his own countrymen, it is not that he fails to appreciate the importance of the contributions which have been made to our knowledge of the subject by the latter, for the value of the work done, especially by Wilks and Hughlings Jackson has not been surpassed, but because it seemed to him

that the usefulness of his book would be increased by its containing the views of authors whose writings are not so generally available to the English reader.

56, Grosvenor Street;
March, 1874.

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CLINICAL ASPECTS

OF

SYPHILITIC NERVOUS AFFECTIONS.

CHAPTER I.

ON THE DIAGNOSIS OF SYPHILITIC NERVOUS AFFECTIONS.

Every medical practitioner, it may be assumed, is acquainted with the fact that persons who have, at one time or other in their lives, become affected with constitutional syphilis may some day exhibit symptoms of nervous disorder which are referable to this infection and may prove to be curable by specific treatment. Notwithstanding this, it is certain that this pathological association (and consequently its important bearing upon therapeutics) is very far from being generally remembered. The result is seen in the fact that patients frequently present themselves for advice who are suffering from some form of nervous affection dependent

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upon syphilis, who have already received all kinds of treatment except one directed to the basis of their disorder, and who recover, or are more or less benefited when specific remedies are adopted. In the treatment of these disorders more, perhaps, than in any others, an early application of appropriate remedies is of the greatest importance, and frequently, it is certain, makes all the difference between cure and the continuance of irreparable injury, or even death. Even when from some circumstance or other, often from the sufferer's own folly in attempting deception, a correct diagnosis has not been made, and the patient has long continued to derive no relief from the treatment adopted, but has been getting gradually worse, a timely recognition of the specific origin of his disorder, and the application of suitable remedies, are very frequently found to stay the downward progress of his disease, and bring about an amount of improvement far beyond what might have been anticipated. No doubt, in such cases, the amelioration is often only partial, a disorganisation of nerve substance has taken place, which is irreparable so far as this has gone, but further extension is prevented, and time is given for the natural process of repair to effect a great change in the

patient's condition. It becomes, then, of great consequence to consider what are the points which may aid us to the formation of a correct judgment in this matter.

When we see a child who is anasarcous, and has albuminuria, our thoughts immediately turn to scarlatina, and we inquire whether the patient has lately had a sore throat. We do not expect necessarily to find at that time any external mark or indication of the antecedent fever. We know that the anasarca is a common sequel of scarlatina, and ninety-nine times out of a hundred we are right in supposing that the child has suffered from that disorder. Here is an association of ideas which is always present to every medical man, and in this case constantly leads him to a right conclusion. Now, it seems to me that the possibility of a similar association in respect to syphilis ought to find its place in the investigation of every case of nerve disorder. I need scarcely say that the analogy will not hold good as regards the frequency of the connexion between nerve disorder and syphilis. That is manifestly impossible. It is evident that all kinds of circumstances may place the probability of such an association out of the question, and I need not dwell upon these. But we should especially

remember that, just as in the case of the anasarcous child we are content with the history (often brought out only by our own questioning), and require to see no mark of scarlatina, so in cases of syphilitic nervous affection, we must not expect to find in the patient any definite sign which would necessarily prove the syphilitic nature of his malady. I cannot help thinking that an error in this respect is at the bottom of the frequent defects of diagnosis which occur in the examination of these cases. The medical man has read of syphilitic diseases of the nervous system, and expects, for some reason or other, that when such a case presents itself to him it will bear unmistakable marks of its peculiar origin. Called to a patient who has lost the use of his limbs on one side of the body, or who is in convulsions, he sees what is clearly to his mind a case of paralysis or epilepsy, differing in no respect, so far as he can observe, from other cases of these disorders which he has watched. There is nothing to suggest syphilis, and, unlike what happens by reason of the well-known bond of connexion between anasarca and scarlatina, his experience in this instance has not taught him how frequent is the association of loss of power, or convulsion, with antecedent syphilis. I think

it cannot be too distinctly affirmed that, although the concurrence of various symptoms and circumstances renders easy now and then a correct diagnosis of the syphilitic origin of a nerve disorder even without the help of the patient's history, yet there are no pathognomonic signs as yet definitely ascertained which will point conclusively, without the aid of the history, to the specific nature of the case. The lesions which result from syphilis affect the machinery of the nervous system like the lesions which are produced by many other causes. The wheels of a watch may be stopped as well by the intrusion of a hair as of a piece of grit, and it is only the knowledge of the conditions to which the instrument has been exposed which will enable us to decide which of these substances is the probable source of the resulting breakdown.

But although the individual symptoms carry with them no conviction as to the specific origin of the disorder (because they are but symptoms of some lesion or other affecting portions of the motor or sensory tracts), the peculiar grouping of such symptoms may lead of itself to a probability but little short of certainty. The following case, which occurred in hospital practice in 1870, affords a good

illustration of this, as well as of other points upon which I have touched, or shall notice in other parts of this work.

Case I.—A man, aged thirty-nine, was wheeled into the consulting-room on a chair, being unable, except in the slightest possible degree, to move either leg. Neither could he lift his right arm, and his face also was partially paralysed on the right side. He had great trouble besides in expressing himself, being constantly at a loss for the right word. A touch was felt very imperfectly on the right side of the face and arm, and on both legs. There was incontinence of urine and of fæces, as well as absolute impotency. He was very cachectic in appearance. There was no evidence of disease of the heart, kidneys, or blood vessels, and there was no history of any injury. During a voyage to England five months previously he had complained of extreme weakness, which gradually merged into a definite loss of power in the right leg, and was accompanied by incontinence of urine. Two months after his arrival in this state, he suddenly became paralysed in the right arm and face, without any attack of loss of consciousness, and a week after this his left leg began to lose power, until it became as much paralysed as the right. The left arm was the only limb left unaffected. He had been under constant medical treatment, which included, as I ascertained, strychnia, iron, and quinine, but had uninterruptedly grown worse. Finding, on inquiry, that seven years previously he had suffered from a chancre for which he took mercury till his teeth were loose, and which was followed by sore throat, but by no skin eruption, I at once gave him iodide of potassium. In a month he could walk a mile with the help of two sticks, and could hold his urine for a short time. In

another fortnight he could walk a little way without sticks, and a month after this he could manage four miles by the help of a stick. His reproductive powers had returned, and he had much more command over his bladder and sphincter ani. Six months after his first visit to the hospital he had almost entirely recovered his usual health, could walk six miles "at a spell," and more than that in the day. His grasp was equal and perfect with either hand. There was still a little hesitation in speech, but he had ceased to employ the wrong word. There was also some slight remaining weakness of the sphincter ani. He told me he could feel nothing the matter with him, and was about to start for one of the colonies. I advised him to resort to the iodide (of which he had taken thirty grains daily for six months) in case he felt any tendency to a return of his ailment.

This man must, probably, have had a double lesion—one situated in the district of the left middle cerebral artery, and the other in the sheath of the spinal cord, most likely in the lower dorsal portion. Leaving the previous history of the patient and the results of treatment out of the question, this pathological condition alone pointed to interrupted communication in various parts of the sensory and motor tracts. Now, as regards the intracranial lesion, the resulting symptoms were consistent with softening consequent upon embolism of the middle cerebral artery, or with cerebral hæmorrhage in the region supplied by this vessel, or

with pressure from some growth. But the lesion of the cord, if it were not dependent upon a partial myelitis, must be caused by some form of tumour, cancerous or otherwise, and the improbability of the almost coincident appearance, in a man of this age, of tumours which were not syphilitic in two parts of the cerebro-spinal axis, would practically decide the question. On the other hand, there would be nothing at all inconsistent in the occurrence of gummatous tumours about the same time in various portions of the cerebro-spinal membranes. The history, however, and the excellent recovery from an exceedingly grave state under iodide, left the nature of the disease in no manner of doubt.

This case will serve very well for a text upon which to found some general observations upon the diagnosis of syphilitic nervous affections. The points specially noticeable are as follows:—1st. The age of the patient. He was too young for the hemiplegia to be reasonably explained by the occurrence of non-inflammatory softening of the brain, such as is so common in advanced life from degeneration of the cerebral arteries, and the condition of his circulatory apparatus and kidneys was equally sufficient to exclude the probability of embolism,

thrombosis, or cerebral hæmorrhage. The absence of unconsciousness at the time of his hemiplegic seizure would also practically exclude the last. 2nd. The occurrence of lesion contemporaneously in two portions of the cerebro-spinal axis. This is a feature peculiarly noteworthy. It is exceedingly uncommon except as a result of syphilis, and very common in the disorders of the nervous system which are consequent upon that disease. 3rd. The existence of marked cachexia unexplained by evident disease of any of the viscera. 4th. The history of a venereal sore, which had been contracted seven years previously, and which, as it was treated with mercury, and was followed by sore throat, was doubtless of true syphilitic character. 5th. The immediate improvement and rapid restoration to health under the employment of iodide of potassium.

It will be remarked, if this case be analysed, that the individual symptoms taken singly presented nothing conclusive of a syphilitic origin of his affection. The man was paralysed in one half of his body just as occurs in ordinary hemiplegia. He lost the use of both legs, the power of one failing somewhat before that of the other, which is not uncommon in ordinary paraplegia. The aphasia from which

he suffered is constantly seen as an accompaniment of hemiplegia from various causes influencing the integrity of the motor tract, from the anterior ganglionic centre of the left side. His impotence, incontinence of fæces and of urine, are all everyday accompaniments of paraplegia, from various lesions of the cord. The cachexia might have been due to an unrecognisable disease of blood-making viscera. Lastly, he might have recovered health whilst taking iodide without that drug having anything to do with the restoration. Many cases of hysterical paralysis do so recover health under that treatment, although we are tolerably sure that the drug performs no part whatever in the cure. It is, however, in the combination of all these symptoms that we find, without any doubt, the key to their causation. So strong indeed is the evidence that we could even afford to do without the clinching proofs brought by the syphilitic history, and the results which followed a specific treatment of his paralytic condition.

Of the various points referred to, I would lay by far the most weight upon the age. It is this which first attracts the attention in a case of serious lesion of the nervous system, and in many cases almost immediately determines the

diagnosis. I have little hesitation in stating my conviction that, putting aside cases of injury, hemiplegia or paraplegia occurring in a person between twenty and forty-five years of age, which is not associated with Bright's disease, nor due to embolism (from disease of the cardiac valves) is, in at least nineteen cases out of twenty, the result of syphilis.

I need scarcely say that such a completeness of testimony as characterised the example quoted is not what we most commonly meet with. Were it so, there would be but little difficulty in our diagnosis of conditions which, on the contrary, are often extremely obscure, and require the most careful investigation and weighing of evidence in order that we may come to a right conclusion.

In noting various points, the consideration of which may help us in forming a diagnosis, I have placed last the evidence gained by the employment of iodide of potassium. Practically, for many years past, in common with others who see a good many examples of nervous disorder, I have been in the habit of prescribing this drug very early in every case which did not from its symptoms offer a ready solution of the cause of the disease without the necessity of considering whether it was possibly

of syphilitic origin. In very many instances this practice affords a convenient means of arriving at an opinion which more elaborate investigation may then confirm. It would be rather like reasoning in a circle to say that "because iodide of potassium immediately removes certain symptoms, therefore the case is of syphilitic nature, and because it is syphilitic therefore iodide of potassium will cure it." But practically the statement is generally correct as far as it goes, though, of course, it is not logically an argument. We see a similar association of ideas every day in the case of intermittent fever and the employment of quinine, as well as in scabies and the local application of sulphur. Unfortunately a too great dependence upon the apparent results of treatment may lead us to very erroneous conclusions. As one example, let us take the case of peripheral paralysis of the portio dura. This is sometimes the result of syphilitic thickening of the fibrous membrane lining the aqueductus Fallopii, but it is still more frequently caused by the action of cold, and under these circumstances is supposed by some to be of rheumatic character. Now it is notorious that cases belonging to this last category will recover, sometimes rapidly, without any treatment, and if in such an instance

we give iodide, and the patient gets well, we shall wander very much astray in ascribing the lesion to a syphilitic origin. On the other hand many cases of specific character are unaffected by moderate quantities of iodide, some indeed not responding at all to such treatment even in large doses, but requiring the employment of mercury; and should a small and tentative employment only of iodide be made without good results, we may easily jump to the conclusion that there is no syphilitic basis, and be led to neglect the only means of curing our patient. Whilst, therefore, the beneficial effects of iodide will often give us a strong *primâ facie* ground for concluding that the case is syphilitic, we must not rest too confidently upon this kind of evidence, nor consider that the non-specific character of the lesion is at once proved by the negative results which seem to follow treatment addressed to such a cause. Amongst the cases of epileptic character which I have met with, and some of which are narrated further on, there have been several in which, after bromide of potassium had failed to be of service, the iodide was immediately successful. I think that under such circumstances the results of treatment lend very strong testimony to the specific nature of the disorder. With a view of

testing this point I have frequently given iodide of potassium in large doses to epileptics in whom from circumstances I could feel sure there was no syphilitic taint, and I have failed to find any well-marked influence exerted upon the number or severity of the attacks which, on the other hand, were speedily checked when the bromide was substituted. Convulsive attacks, on the contrary, dependent upon syphilis, are usually influenced to a remarkable extent by the iodide of potassium.

And here it may be well to refer to certain characters which point to the syphilitic origin of many cases of convulsive disorder as distinguished from what is called essential epilepsy. If pain in the head be associated with the convulsive attacks, it generally precedes the outbreak in syphilitic convulsion, and is often localised in one particular spot. There is frequently a history of antecedent pain for months before the first fit. In simple epilepsy it almost always follows the fit, is diffused over the forehead, and is at no time a strongly marked symptom. In the simple form the attacks most often commence about the period of puberty; in the syphilitic, they do not make their appearance till a later period, generally perhaps when the patient has past twenty or twenty-five

years of age. In syphilis there occur very often attacks not characterised by loss of consciousness; the patient feels a cramp in the fingers of one hand, which draw up, then the hand is contracted upon the forearm, and this upon the upper arm, and clonic convulsions ensue for several minutes. Or the tongue may be twisted to one side, and the cheek be then spasmodically drawn up. Sometimes the same phenomena happen in one of the lower extremities. These attacks may cease without the patient losing his senses or, beginning thus, the seizure may proceed to insensibility and general clonic convulsions, as in ordinary epilepsy. In syphilitic epilepsy there is frequently a rapid recurrence of seizures, with intervals of more or less complete coma, and often loss of power in the limbs of one side following the attacks, and lasting for a short time only. The epileptic cry is often absent. My colleague, Dr Hughlings Jackson, to whom we are so much indebted for his valuable observations in syphilitic nervous affections, has described a condition which, according to his experience, is highly characteristic of syphilis. He finds that double optic neuritis (or amaurosis from its frequent sequela—atrophy of the optic disc), along with convulsions beginning uni-

laterally, most frequently in the hand, and especially in the two first fingers, form an association of symptoms which usually implies syphilitic disease of the brain. The convulsion no doubt points, he says, simply to disease of some kind, not to any particular pathological change of, or in the side of, the brain opposite to that in which the spasm sets in. The combination with optic neuritis merely helps us to say that the change is a gross one—a lump of *something*. But experience shows that the gross disease of the brain in these cases is usually syphilitic. Since Dr Jackson called my attention to this combination, I have observed it sufficiently often to feel that he is right in regarding it as an important diagnostic feature.

As regards the occurrence of hemiplegia this may be associated with a sudden attack of apoplectic character, or it may be slowly and gradually developed. If the attack be sudden there is this peculiarity, that the patient seldom loses consciousness; he feels giddy, perhaps, and on attempting to rise finds that he is paralysed. This is the mode of onset described in several of the cases narrated further on. It is not, however, peculiar to syphilis, and cannot, by itself, be relied upon as diagnostic; and equally the slow development of hemiplegia only points

to the growth of a tumour, or progressive increase of some formation, which is not, however, necessarily of syphilitic character. Other circumstances have to be considered, such as the age, history, condition of other organs, especially the heart, blood-vessels, and kidneys, ere any approach to the probably syphilitic character of the lesion can be made.

And, supposing the circumstances should point to its being of this nature, there is still the difficulty,—not, it is true, a very important one in practice,—that the lesion may be either due to the existence of a gummatous tumour connected with the cerebral substance, or the symptoms may arise from morbid changes in the blood-vessels, the skull, or the membranes. If the lesion be connected with bone alteration, it is usually found to have been preceded by fixed, intolerable pains in the head, which may have lasted some considerable time, and which are often, but by no means always, increased at night. In addition, an important aid to diagnosis in such cases exists in the circumstance that the seat of pain may be actually tender on pressure, and that in its neighbourhood some periosteal thickening may be discovered.

Paralyses of individual cranial nerves are often due to morbid change existing on the

same side of the skull in the bone or the membranes. According to Professor Zeissl* hemiplegias, dependent upon morbid change in the vitreous table of the skull, are, with the exception of those which proceed from an alteration in the base, never so marked and complete as those which are brought about by disease in the brain substance itself, especially if the corpora striata and optic thalami are affected. When hemiplegia is sudden, it can hardly depend upon exostosis, which would be more likely to bring about a gradual loss of power by its growth. So, also, those phenomena which are marked by intermissions, loss of power enduring only for a short time, aphasia of transient character, and frequently recurring, can hardly depend upon exostoses, the growth of which is gradual, and the pressure of which cannot be suddenly taken off and restored. Cases of this kind will be found described later in this work.

Huebner† divides the symptoms of brain disease from syphilis into those which are persistent, and those which are intercurrent. The symptoms may occur in any period of syphilis, sometimes, indeed, from the first appearance of

* 'Lehrbuch der Syphilis.,' 2 Th., p. 290, Erlangen, 1872.

† S. Canst. Jahresb. 1870.

the exanthem. In the beginning only trifling troubles are to be noted, and these either continually increase to a high degree, or constantly persist and show paroxysmal accessions. These apoplectiform paroxysms quickly lead, either by increase of the symptoms, to death, or diminish quickly or slowly, and only trifling disturbances remain behind; or the symptoms vanish completely. Huebner quotes two cases observed by him in which the symptoms of brain disease showed the above-named characters, and which ended fatally. Both patients evinced unmistakable signs of general syphilis. In one of the cases, a man, æt. 34, in whom the disturbances in the form of apoplexy quickly led to death, the autopsy showed alterations of different degree in the soft membranes, rigid spots in the left superior artery of the cerebellum, and the left sylvian artery; clinging loosely to these rigidities were soft coagula. In the other case, which was that of a woman æt. 25, in whom the fluctuation and disappearance of the symptoms of brain disease had occasioned an erroneous diagnosis of hysteria, section showed softening of the brain, clouding of the soft membranes, thickening of a portion of the right sylvian artery, a partly solid, partly soft coagulum firmly sticking to this point, with

a brown-red, soft, recent coagulum behind it. The right artery of the corpus callosum showed likewise a thickening, to which an older thrombus clung, as also did the basilar artery—a gradual strata-like thrombosing of the blood-vessels (it was not a question of embolism), which was very characteristic of a syphilitic brain disease. In the chapter on morbid anatomy I shall have more to say about these arterial changes. They are especially interesting, in that it seems likely that iodide of potassium exerts little or no influence upon them. In a case in which I found such a condition unusually well-marked on post-mortem examination, the patient had been taking considerable doses of this drug for some time previous to his death.

In the diagnosis of paralysis of the extremities, without involvement of the cranial nerves, the question whether the cord or its membranes is the seat of a syphilitic affection must be considered with reference to the same points as those which guide us in examining cases of hemiplegia. The age, history, condition of the organs generally, the occurrence of injury and exposure to cold, the effect of remedies, must all bear their part in enabling us to arrive at a probable solution of the nature

of the lesion. Owing, probably, in great part to the trouble attendant upon examination of the contents of the spinal column after death, the relation borne by syphilis to affections of the cord or its coverings has not nearly attained the same degree of precision as that which has been arrived at in regard to diseases of the brain and its envelopes. Still there is sufficient evidence to show that syphilitic inflammation of the membranes and gummatous deposit in them and in the cord do occur, and it is likely that, attention having been of late much drawn to this point, proofs will become more and more numerous. It is certain that, as far as clinical experience goes, a large number of lesions of the cord may be considered to occur from syphilis, and the results of treatment based upon this diagnosis are every day producing the most remarkable instances of recovery from conditions which might otherwise be considered irreparable. In the illustrative case at the beginning of this chapter, one example of this will have been seen.

There is sometimes a difficulty in deciding whether the central lesion, which has produced paralysis of one or more extremities, exists in the brain or cord. Paralysis of all four ex-

tremities, for example, may occur as well from cerebral meningitis, or from tumours lying in the middle line of the brain, as from a lesion within the spinal column. It may be well to consider the points which help us to decide in which region to place the seat of disease. Generally speaking, a lesion of the brain which produces paralysis of all four extremities, is accompanied also by symptoms which enable us to refer it readily to the brain, such as mental disturbance, or paralysis of one or more cranial nerves. Paralysis of muscles serving involuntary movements, such as those of respiration and the sphincters, can usually be ascribed with great probability to lesions of the cord. Disease affecting the dorsal and upper lumbar portions of the cord will produce paralysis of the abdominal and lumbar muscles, impairment of respiration, so that breathing is mainly diaphragmatic, meteorism, paralysis of the sphincter ani, and of the bladder. Pain in the vertebræ, when it occurs, is an important evidence of lesion affecting the membranes of the cord, but it is by no means a common feature in paraplegic conditions. Perhaps, however, the most significant of all symptoms which point to spinal cord disease, is a sensation of a hoop, or constricting band, around some portion of the trunk. I

have seen this symptom referred in various cases to every part, from a segment immediately below the axilla to one around the pelvis, and I have never known it occur in any form of brain affection. It has always been a symptom of lesion of the cord or its membranes.*

It is requisite to remember that as no period is too late for the occurrence of syphilitic nervous affection—twenty, thirty, or more years sometimes having elapsed since the primary infection—so at the earliest stage of the constitutional disorder, disturbances of the nervous system may occur, the cause of which there can be no doubt is frequently overlooked with the result that their treatment is necessarily ineffective. An example of this is shown in Case III.

Vertigo is a very common phenomenon in these affections, especially in the earlier periods. Often associated with pain in the head or with convulsive seizures, it sometimes stands alone as a symptom. It is apt to be very constant, not appearing in paroxysms of intense severity like that form which is associated with functional derangement of the digestive organs, but so continual as to be a source of great discom-

* A sensation of somewhat similar character is occasionally described by chlorotic patients, but under these circumstances it is never so strongly marked.

fort to the patient. The symptom, like other phenomena of the earlier stages, frequently yields with great rapidity to specific remedies.

In connection with the illustrative case related early in this chapter I have already called attention to the important indications derived from the existence simultaneously of two or more grave lesions of the nervous system not necessarily connected, and I would insist upon this condition as of all others, perhaps, the most nearly approaching a pathognomonic character.* It is very common (and the cases narrated in this work will show this) for such associations as the following to be found: hemiplegia with paralysis of one or more cranial nerves, especially the third, fourth, fifth or sixth, and with or without convulsive seizures; hemiplegia with paraplegia either accompanying or following it, or *vice versâ*. Amaurosis with convulsion, or with paralysis of one or more cranial nerves, or with hemiplegia, or paraplegia. Localized affections of sensibility associated with neurosis of motility at some

* It frequently happens that we can readily name the painter of a picture, although the materials used in it are just those common to all paintings. It is the mode in which they are employed which presents certain marked characteristics.

physiologically distant portion of the cerebro-spinal axis. Mental disorder with convulsive affection, or with paralysis of individual nerves, or with hemiplegia, or paraplegia. In the sequel of diphtheria, and occasionally also of typhus fever, multiple affections of motility and sensibility are sometimes observed; and these may raise a suspicion of syphilitic lesion, but the history of the case, and the paretic rather than paralytic character of the phenomena in the former affections will serve to distinguish them without much difficulty.

There is one point connected with syphilitic disease of the brain, which, so far as I am aware, has not yet received all the attention which it deserves in reference to diagnosis or treatment. In the ordinary cases of paralysis which occur in the middle-aged, and those in young adult life, and are usually due either to disease of the blood-vessels associated with granular degeneration of the kidney, or to embolism from disease of the valves of the heart remaining after acute rheumatism, the patient either dies in a comparatively short time from the hæmorrhage which may occur when the disease belongs to the first category, or he may recover with a fair amount of health, but with more or less permanently rigid limbs if

the lesion has been of the latter description. Chronic mental disturbance in such conditions is very rare. On the other hand, when the lesion is of syphilitic character, and where therefore there is a tendency to relapses, sometimes extending over a long series of years, various parts of the patient's brain and cord are from time to time affected, and sooner or later there very frequently ensues a disturbance of the intellectual faculties which is very peculiar. I have reason to think that there is a large number of persons at the present time suffering in this manner. They are usually not above the middle period of life, and go about as chronic invalids, with one or more of their limbs paralysed, and exhibiting, in addition, more or less marked impairment of mental powers. This may consist chiefly in defect of memory, or they may have delusions, sometimes of an exaggerative character, and they are often extremely indolent and slovenly and stupid. These conditions may alternate with periods of great improvement, in which there seems ground to hope for an eventual recovery, but they never, even at their best, return to a sound mental condition. Their friends, to whom they are a constant source of anxiety, always describe them as much changed

in character, and eventually they sink into a state of confirmed dementia, or succumb rapidly in a state of mania. The cause of this affection is generally referred to softening of the brain from overwork.

Such conditions as these have been frequently confounded, especially, I think, by French writers, with that known as "general paralysis of the insane," from which, however, they are distinguished by several circumstances. General paralysis of the insane runs a somewhat definite course, which varies, ordinarily, from several months to three years. The paralytic affections are incomplete, not such as arise from gross destructive disease of the nervous texture. The disease commences almost always with trembling of the tongue and lips, and, either simultaneously with this motor disturbance or much more frequently preceding it, there is marked mental derangement. The motor disturbances in the limbs which succeed are of gradual development, and of paretic rather than paralytic character, and the motor affection generally involves the two sides of the body to an almost equal degree. There is especial tendency to delusions of the most extravagant character, and the mental disease throughout obtrudes itself more strongly and

persistently than the affection of motion or sensation. The reverse, as I have just pictured, more commonly obtains in cases of syphilitic dementia. In both, however, there may be periods of amelioration, interrupted by convulsive or maniacal attacks. It is the difference at the onset which is most marked. In syphilitic dementia, the disordered state of mind is apt to follow one or more attacks of apoplectic character with accompanying sudden and complete paralysis, with evidence indeed of extensive destruction in a nervous centre. In general paralysis of the insane, this evidence is wanting, and ordinarily it is an alteration in the intellectual faculties which first attracts attention, and, succeeding to this, the tremor of the lips and mouth only too significantly betrays the fatal nature of the disorder. The occurrence of inflammation of the membranes covering the hemispheres of the brain, with subsequent thickening and adhesions to its cortical layer of gummatous tumours of the pia mater, or brain substance, or thickening and narrowing of the vessels, occasioning softening, will cause a disorganization quite capable of explaining the mental as well as the physical troubles in syphilitic dementia.

Dr Blandford informs me that it is in the

forms of dementia and melancholia he has most frequently been able to trace an association with syphilis. He has seen several cases of melancholia yield to anti-syphilitic treatment. He has also observed one case in which mania came on whilst the patient was being treated for syphilitic ptosis.

No doubt, just as a patient who has contracted syphilis may go through life without the occurrence of any lesion of the nervous substance, so, on the other hand, he may in advanced life be affected with degeneration of the nervous centres which do not depend upon the syphilitic infection. Age may bring about alterations in the elasticity of his cerebral arteries leading to hæmorrhage, or non-inflammatory softening, just as it does in others who have never contracted syphilis. It often occurs, therefore, that a good deal of doubt is felt in certain cases as to whether the symptoms of nervous lesion observed in a patient are due to acknowledged antecedent syphilis, or to alterations in his blood-vessels entirely independent of this disorder. These, indeed, constitute some of the most difficult cases for a direct diagnosis. Age, as somebody has remarked, does not arbitrarily signify the number of years during which the

body has revolved around the sun, but the degree to which the tissues have taken on that degeneration which is so often associated with advanced life as to be included in its natural phenomena. In everyday experience we see young men of seventy years of age, and old men of fifty. It is when we meet with serious and confirmed symptoms of change in the cerebral substance in individuals who present a syphilitic history, but who have not yet arrived at the period of life when degenerations are common, that we experience difficulty in deciding whether such changes should be placed to the score of premature old age or to syphilis. And the difficulty is increased by the fact, which is perfectly well known, that there may be changes of a senile character in the arteries of the brain, without any corresponding sign of degeneration in those, such as the radial and temporal, which are easily examined. Where there is much doubt on this point, it is best to err on the safe side, and by a tentative treatment with anti-syphilitic remedies discover whether such will help us to a diagnosis.

Mental disturbance of the kind which I have described, may be seen as a result of chronic softening of the brain quite independent of syphilis. Such cases abound in our workhouse infirmaries, and in private practice, although,

from the nature of things, they are not often met with in hospitals. Dr Reynolds says, in his article, "Softening of the Brain,"* "Among the conditions which predispose to its occurrence the most important is age, or agedness." And of "chronic softening," he adds, "There is diminution of intelligence. The patient is unable to pay attention, and consequently fails to receive new ideas. Subsequently memory is impaired, past ideas are not recalled with readiness, and there is general confusion and incoherence. . . . The gradual failure, one by one, of the intellectual faculties is, *per se*, one of the most characteristic symptoms." But the great peculiarity attaching to the mental disturbance as a result of syphilitic disease is, that it occurs so frequently in quite young persons —in those about whom there can be no doubt as to whether or not they have arrived at a period of life when senile degeneration can possibly have commenced. In such, when we have excluded accidental sources, such as injury to the head, sunstroke, unusual excesses in drinking, and manifest diseases of the general circulatory apparatus, if there be either evidences, or a history of constitutional syphilis, we may fairly turn to this disorder as

* 'System of Medicine,' vol. ii.

a key to the symptoms. The diagnosis in such instances will not fail to be fortified by the peculiarities connected with the paralytic symptoms which accompany the mental troubles, distinguishing the condition alike from chronic softening of non-specific character, and from general paralysis of the insane.

The *ophthalmoscope* is indispensable in the examination of cases in which a syphilitic basis is suspected; if not, indeed, in all cases of nervous affections. The evidence which I have seen afforded by it, in reference to this particular subject, has been, to speak generally, of two kinds. It may disclose the results of past lesions of deep-seated tissues of the eye, such as experience has shown to be very frequently of syphilitic origin, and, thereby, in a case wanting in the more palpable external manifestations of the disease, supply an all-important link. Or it may indicate the actual presence of tumour within the cranium, or of meningitis, by presenting to our sight the changes belonging to optic neuritis. I may refer here to Cases XVI and XX as examples of the first category, and to Cases XVIII and XIX as illustrations of the second. With regard to the former class, the changes which I have most frequently met with have been due to old dis-

seminated choroiditis occupying the posterior segment of the eye, and characterised by the presence of numerous small white spots in the choroid, surrounded by black pigmentary rims. These have been produced by exudations of lymph which have become absorbed, and the portion of choroid corresponding to them atrophied. Occasionally with this change there is also atrophy of the corresponding optic disc. One has to remember that choroidal atrophy — not usually, however, in patches—may result from the changes incidental upon an injury. I saw a case of this not long since, which had followed a heavy blow upon the eye. According to Von Graefe, disseminated choroiditis, limited to the posterior segment of the globe, is of syphilitic origin in seventy-five cases out of a hundred. It is to this affection that a great proportion of the amaurosis which occurs in syphilis is due.

Atrophy of the optic disc is another condition frequently observed in these cases. It often happens that when it falls under the physician's notice there is nothing to show whether this condition represents the sequel to an attack of optic neuritis, or has appeared gradually as a simple impairment of nutrition. When it has resulted from choroiditis the appearances

proper to that affection will indicate the association.

It ought not to be forgotten that the occurrence of atrophy of the optic disc in a decidedly syphilitic patient does not by any means necessarily prove that the atrophy was occasioned by the syphilis. The following case will illustrate this point.

Case II.—A gentleman, æt. 33, told me that he had been failing in the sight of one eye for about ten years. The right disc was in a state of partial white atrophy; the left presented nothing very definite except that perhaps the arteries were rather small, and its colour was not healthy. He had had a chancre eleven years previously, followed by sore throat and recurrent skin eruptions. For three or four years past he had felt languid and wanting in energy, and had, moreover, been subject to "flying pains," about which I inquired particularly. He would have, it seemed, a paroxysm of them, lasting a day or two at a time, then ceasing altogether, and not reappearing for two or three weeks. The pains were described as excessively sudden, sharp, and darting "like knives," and they lasted only an instant. During a bout of these pains he would be kept awake by them at night. I thought that the atrophy of the disc was probably not due to syphilis, because it must have begun, if his story were true, within a year after the primary infection, and because it was easier to explain it otherwise. It seemed to me likely, judging by the "lightning pains" which he described, that the affection was of that kind which often accompanies and sometimes precedes sclerosis of the posterior columns of the cord. He has as yet no ataxy, but this symptom will probably sooner or

later betray itself. I got Mr Lawson to see him afterwards with me in consultation, and he agreed with me both as to the appearances presented, and also in the opinion that the affection was not of syphilitic character.

The condition which is called "descending optic neuritis" is full of interest and importance in the diagnosis of these cases. Both eyes are usually affected, but generally one presents a more advanced stage than the other. There may be no impairment of vision accompanying extensive effusion of lymph upon the disc, and a considerable amount of sight may coexist even when the disc is atrophied to some extent. This preservation of sight under such unlikely circumstances has been pointed out especially, and, I think, first, by Dr Hughlings Jackson, and I have convinced myself of the accuracy of his observation. The fact is evidently a very noteworthy one, as the patient's disclaimer of there being anything wrong with his sight is quite compatible with the presence of serious changes as observed by the ophthalmoscope. The disseminated choroiditis which the physician meets with is generally a matter of the past, and it is its results that he sees; but descending optic neuritis may be watched in its progress side by side with symptoms of eclampsia or paralysis, or both. Its importance consists, not

only in the probability of eventual atrophy of the disc, and consequent amaurosis, but in the circumstance that it indicates disease of some kind beyond the eye—tumours within the cranium, meningitis, something which presses on the nerve or impedes the return of blood through the ophthalmic vein. Or the seat of disease may be distant from it; there may be *e.g.* a gumma on the surface of a hemisphere. It is not easy to explain the occurrence of optic neuritis under these circumstances. The tumour may modify the circulation in the blood-vessels of the optic nerve, and produce secondary trophic disturbance, by means, possibly, as Benedict supposes, of sympathetic vaso-motor influence.*

Paralysis of one or more of the nerves which supply the muscles attached to the globe of the eye, and its upper lid, is of such frequent occurrence in syphilis of the nervous system that a glance at a patient's face is often quite sufficient to take us a long way on the road to a correct diagnosis. Where ptosis occurs, it is seen at once that there is paralysis of the upper di-

* For detailed information respecting the deep affections of the eye observable in syphilitic nervous disorders I would refer the reader especially to the writings of Dr Hughlings Jackson, Dr Clifford Allbutt, and Mr Hutchinson.

vision of the third nerve, and where there is marked strabismus, or where, on passing the finger before the patient's gaze in various directions, it is found that his eye fails to follow its course, the muscles affected may be singled out easily enough, and the lesion at once referred to the nerve supplying them. It is requisite, however, to remember that the loss of power may be very slight, and may be almost entirely expressed by a very small excess in the tractive capacity of the antagonistic muscle. In such a case the eye will follow the finger with apparent facility in each of the various directions represented by the insertions of the recti muscles, and there may be no objective sign of paralysis. But it will be found that there is diplopia, which the patient himself may have remarked, or he may not have noticed it on account of its only occurring when the gaze is directed to certain points of the compass. In this way subjective evidence is afforded of the weakening of some muscle. Under these circumstances it is not always easy to say which muscle is affected, but this can be made out, if thought desirable, by a sufficient expenditure of time and patience. From a practical point of view, however, this is not often of much consequence, the

important matter being the fact that a muscle of the eye is partially paralysed. The discovery of this will frequently facilitate greatly the diagnosis in a case which might otherwise admit of much doubt, especially where, from circumstances, inquiry as to infection has to be avoided.

Where diplopia is described by the patient, but no strabismus is to be observed, there is a ready means of discovering which eye is affected. The patient should be told to walk a few steps with first one eye and then the other closed with the hand. He will stagger in his gait, and experience vertigo when the sound eye is closed, owing to inability to co-ordinate the muscles of the affected eye.

A certain amount of help in the diagnosis of this class of nervous affections is to be obtained by *electrical* examination of paralysed muscles, but this is chiefly of service in distinguishing peripheral from central lesions. If the case be one of hemiplegia, although the ultimate factor be thrombosis of the arteries from syphilitic thickening of their structure and narrowing of their calibre, the proximate cause will still be softening of a portion of the motor tract, and the electrical condition of the paralysed limbs will be indistinguishable from that which belongs to hemiplegia from softening dependent

upon non-syphilitic antecedents. In such cases the muscles will probably show either a slightly diminished farado-excitability or a normal reaction, the conditions which I have generally found to obtain from examination of a large number of hemiplegic limbs. I have some reason to think that where hemiplegia is caused by thickening of the cerebral membranes, the electrical condition will be found to resemble that which is observed in peripheral paralysis—farado-contractility will be abolished. At present, however, I am unable to speak positively upon this point, which is well worthy of investigation, for if this should prove to be the case it would furnish an important means of diagnosis between softening of the brain substance (a permanent injury) and a temporary interruption of nerve force owing to a compression, which treatment might with confidence be expected to remove.

Nor am I yet in a position to point out any decided evidence which is to be derived from electrical examination of the lower extremities in syphilitic as distinguished from non-specific paraplegia. If, however, we find that the muscles of the legs, having entirely lost their farado-contractility, yet rapidly regain power, and coincidently their normal excitability to the

induced current, we may at least be sure that the lesion was situated in the membranes of the cord, or in the spinal nerves, and not in the substance of the cord, for in the latter case such a symptom could only be consequent upon an amount of softening which could not possibly be followed by such a recovery. An example of this is seen in Case XXII, where this point, combined with others, enabled me to localise the affection in the membranes.

If we meet with a case of paralysis of a limb in which there exists marked atrophy, and the muscles which are wasted exhibit complete abolition of farado-contractility, whilst the reaction to the intermitted constant current is exaggerated, we may safely assume that there is a lesion of the nerve trunk supplying the atrophied muscles, and that we have not to do with paralysis of central origin. This is of no unfrequent occurrence in syphilis, from the pressure of an exostosis or a gummatous invasion of the nerve trunk.

Or we may find abolition of farado-contractility without exaggerated reaction to the intermitted constant current, as in Case XXV, where the observation of this point helped materially to diagnose the presence of a syphilitic muscular tumour. So, again, paralysis

with atrophy, of peripheral origin, may be diagnosed from progressive muscular atrophy, unless this be very far advanced, by the results of electrical examination. In the latter disease the farado-contractility remains normal (in proportion to the bulk of muscle remaining), whilst in the former, as just described, it is lost. In the same way paralysis of a limb, of peripheral origin, may be distinguished from hysterical paralysis, in which there is often great diminution of electro-sensibility, but the farado-contractility is but little, if at all, affected. It may sometimes at first be slightly diminished, but a few applications of the induced current will restore it, or there may from the first be no diminution.

In paralysis of the facial nerve from syphilis (as from cold) the farado-contractility is more or less completely lost, and the reaction to the intermitted galvanic current is usually exaggerated—an evidence that the lesion is not central, but somewhere in the trunk of the portio dura. I have tested the condition of the facial muscles in several cases of labio-glosso-laryngeal paralysis (an affection dependent upon disease of several nerve centres, including that of the seventh, in the medulla oblongata), and have always failed to find any marked loss of farado-contractility.

CHAPTER II.

ON THE PATHOLOGY AND MORBID ANATOMY OF SYPHILITIC NERVOUS AFFECTIONS.

The question of the particular stage of syphilis at which lesions of the nervous system are liable to occur is one about which authorities are not agreed, and it is evidently beset with difficulty. Although in many instances the concomitance of highly characteristic features in the mucous surfaces, muscles, bones, or their covering, enables us readily enough to refer the nervous affection to the tertiary stage, there are, according to my experience, quite as large a number in which symptoms appreciable by the eye or hand which would help us to decide this point are entirely wanting. Still more, in a very considerable proportion of cases strict questioning has failed to elicit evidence of any skin or other affection whatever, whether of a secondary or tertiary character, having preceded the nervous lesion. My attention was drawn to this circumstance several years ago by my colleague, Dr Ramskill; and I think

Lancereaux makes a similar observation in his work on syphilis. In such cases the patient will freely acknowledge the occurrence of chancre and bubo, but at the same time deny that there have been any sequelæ. Clinically, therefore, supposing the lapse of time since infection to have been very short, and knowing, as we do, that tertiary changes are sometimes early in their development, and often delayed, we are without data to aid us in fixing the period of the constitutional disorder to which the affection of the nervous system belongs.

I do not think that I have seen any instance of the more severe forms of syphilitic nervous affection occurring sooner than two years after infection. It must be remembered, however, that we do not always succeed in getting trustworthy evidence on the point of date, patients being much disposed to refer to a very distant past the acquisition of a malady of this peculiar character. In other cases special circumstances will of necessity prevent our even obtaining any information whatever about the period of time which has elapsed since the disease was acquired. Pathologically, and perhaps also in reference to prognosis, the accurate reference of nervous affections to certain stages of syphilis is full of interest and value,

but as a matter of practice—of the recognition and successful treatment of the disorder—it is not of so much importance, and I shall refrain therefore from dwelling very long upon this point in a work which only aims at painting in broad touches certain clinical aspects of the disease.

Lancereaux* speaks of neuralgias and local paralyses (preferentially of the cranial nerves) as the disorders of the nervous system, about the occurrence of which, in the secondary period of syphilis, there is the least doubt. He acknowledges that at present we know but little of the changes which may happen in the nervous centres in that period. He quotes a single case of syphilitic hemiplegia occurring in the secondary period. A young man, suffering from syphilitic impetigo, six months after the appearance of a chancre, was suddenly seized with right hemiplegia. The autopsy revealed no manifest lesion to the naked eye, but there was no microscopical examination. Dr E. Vidal met with a similar case, in which hemiplegia supervened a short time after the disappearance of a syphilitic roseola. Dr Kuh has reported† the case of a woman, æt. 47, who had a papulo-squamous syphilid, with glandular en-

* 'Traité de la Syphilis,' 2nd edition, p. 158. Paris, 1874.

† 'Prager med. Wochenschr.,' 23, 1864.

largement and alopæcia. Fifteen days afterwards she had headache, pain, and diminution of sight in the right eye (iritis), and want of power in the lower extremities, which became complete, and was then followed by dropping of the right eyelid and a convulsive seizure. Some improvement was effected by the use of iodide, but the convulsive attacks were repeated, and she passed into a state of stupor and died. On examination the membranes of the convexity of the brain were discovered to be infiltrated with a yellow exudation, which was found also in the form of small masses in the thickness of the substance of the hemispheres. According to Lancereaux's own experience the secondary affections of the nervous centres are marked by symptoms but little differing from those of subacute inflammations of these centres. A young man whom he treated presented, in the course of secondary syphilis, symptoms which had all the character of cerebro-spinal meningitis, and which disappeared rapidly under the employment of iodide of potassium. The lesions of the cord are generally diffused in the course of secondary syphilis, and present the characters symptomatic of subacute inflammation. A young American, three months after contraction of a chancre, was attacked with a rubeolous

eruption and superficial periostoses. Towards the seventh month of his illness he experienced a sensation of "pins and needles," and weakness, at first in the right leg, then in the left leg, and in the course of eight days he was affected with complete paralysis of sensation and movement in the inferior half of the body, with abolition of reflex movements of the legs. This paraplegia, in spite of specific treatment, was followed by persistent sores and atrophy of the paralysed muscles. At the same time two small tumours, seated in the epididymis of either side, yielded quickly to iodine treatment.

Pains of extremely severe character often accompany, or even precede, the exanthematous stage of syphilis (see Case III). They are frequently called, from their peculiar violence, osteocopic (bone-shattering), and are described as neuralgic in character; but Dr Anstie justly points out that they differ from true neuralgia in that they are symmetrically disposed, and will attack several bones at once.* I think, too, that the elevation of temperature by which they are usually accompanied also serves to distinguish them from neuralgia. The pains affect especially the bones of the cranium, and also frequently the sternum,

* 'Neuralgia and its Counterfeits,' p. 261. London, 1871.

clavicle, ulna, and tibia. They are apt to be increased by the warmth of bed, and thus to assume a nocturnal character, a circumstance which frequently helps the diagnosis materially. The pains which happen in the later periods of the disease, and are associated with tertiary changes, do not, according to my observation, present this feature, but rather tend to vary, sometimes being worse in the daytime and subsiding at nightfall, and often causing equal distress at all hours. It is a characteristic of syphilitic pains at any period that they are apt to be exceptionally severe.

Lancereaux quotes some cases of local paralysis occurring in the second stage of syphilis.* Bassereau has observed two cases of paralysis of the portio dura a little while after the appearance of an erythematous syphilid. Davaine has seen this affection a month after the first symptoms of constitutional syphilis. In all, the facial hemiplegia, which occurred most often suddenly, or at least rapidly, was not quite complete; the orbicularis palpebrarum muscle was affected, and electric excitability was diminished.

In 1870 I saw a female patient of Mr James Lane's, at the Lock Hospital, in whom an indurated sore was followed by skin eruption,

* Op. cit., p. 159.

and, a fortnight after this had disappeared, by paralysis of the right side of the face, along with pain and tenderness in the right mastoid process. She recovered rapidly under iodide of potassium. The case was published in the 'Lancet,' July 9th, 1870.

One of the first to point out the occasional association of grave nervous affections with early syphilis was Dr Knorre, of Hamburg, who ('Deutsche Klinik,' 7, 1849) related several cases of paralysis which arose either along with or very shortly after the first symptoms of the constitutional disorder.* The paralysis in these cases sometimes affected individual nerves, sometimes whole extremities, motion usually suffering more than sensibility; sometimes also the mental functions were involved, more rarely the nerves of special sensation. It is worth while quoting three of these.

1. A metal worker, æt. 20, three weeks previously affected with a sore on the prepuce, developed soon afterwards pityriasis capitis, and a papular eruption spread over the whole body. One morning the lower half of the body was paralysed, and there was pain in the lower part of the back; the urine required to be drawn off, and there was incontinence of fæces.

* Quoted by Zeissl. Op. cit., p. 284.

On treatment with Zittman's decoction there was complete restoration of power, and the cutaneous syphilid disappeared after some weeks' employment of iodide of potassium. He remained well for three years; then a weakness in the left leg occurred, which was quickly cured by iodide.

2. A feeble writer, æt. 30, after similar constitutional symptoms, was attacked with paralysis of the right half of the face. A six weeks' mercurial treatment cured him. Two months later he suffered from diplopia, and the left eye turned somewhat inwards. The iodide after eight days produced improvement, and four weeks afterwards all signs of strabismus had disappeared.

3. In the case of a strong sailor, æt. 24, coincidently with symptoms of constitutional syphilis, the right arm became weak and the right half of the face was drawn to the left. He was cured by mercurial treatment.

Virchow* distinguishes two series of developments in syphilis. There may be simple hyperplasia determining in each tissue homologous products—in a bone, osseous tissue; in an organ containing connective tissue, all sorts

* 'Die krankhaften Geschwülste,' 2 Bd., p. 394, Berlin, 1864–5.

of tumours composed of connective tissue; in a lymphatic gland, lymphatic particles in larger quantity, and so on. These forms indicate simple, slight, inflammatory conditions, and they do not belong, he thinks, in any exact fashion to a determined period of syphilis. Some occur in the so-called secondary and others in the tertiary stage. He allows that certain local affections show themselves with more rapidity and earlier than others, but denies that distinct periods characterised by defined lesions can be rightly described. So-called tertiary accidents may show themselves in the secondary period, and *vice versâ*. There is, however, a general tendency, but this is not absolute, for the disease to progress from the original chancre to the lymphatic glands, thence to the external surface of the body, and, lastly, to the viscera.

Virchow distinguishes a grave and a slight form of the disease in different organs, and admits that the grave forms usually belong to the most advanced periods of the local affection, and the slight forms to the early periods. By slight forms he understands those which are of simply irritative, inflammatory, or hyperplastic character, as distinguished from the grave forms which are characterised by the presence of

gummy tumours which approach heteroplastic formation.

Although periosteal nodes, when well marked, are symptomatic of advanced syphilis, yet they are sometimes found in the earlier stages, accompanying eruptions of the skin such as are classed amongst the secondary manifestations. In the later periods they are, doubtless, of gummatous character; in the earlier they are probably of simple inflammatory nature. And if they occur under these circumstances upon the external surface of cranial bones and others, there is no reason that we know of why analogous swellings of simple hyperplastic character should not make their appearance on the vitreous table of the cranium, and in the various bony canals which transmit important nerves from the skull. It seems likely, therefore, that this may be the explanation of some of the local paralyses and affections of sensibility which occur in secondary syphilis.

Affections of the cerebral membranes occurring early in constitutional syphilis are so very rarely fatal that there is but little necroscopical evidence of the fact. In judging, therefore, of the possibility of such a lesion, we may derive some help, as Zeissl* sug-

* 'Lehrb. der Syphilis,' 2 Theil, p. 285. Erlangen, 1872.

gests, by considering what is known and seen to occur in structures histologically allied to them. We know that in the secondary period iritis is a common phenomenon. It does not seem, therefore, too much to suppose that the pia mater, which, at least in the richness and muscularity of its vessels, is allied to the iris, may be subject to analogous inflammatory disturbance. Still more marked is the resemblance between the arachnoid and the serous envelope of the liver, or the *tunica vaginalis* of the testis, and as there may be perihepatitis and periorchitis as comparatively early affections in syphilis, it seems probable that the arachnoid may be subject to attacks of the same kind which may be followed by thickening.

Whatever doubts may exist as to the occurrence, at least in any frequency, of serious lesions of the nervous system during the secondary period of syphilis, none can be felt respecting the production of these by the changes which belong almost exclusively to the tertiary period. It is at this stage that the characteristic gumma makes its appearance, and it will be well, before proceeding to consider the influence of this growth in the causation of serious organic changes in the nervous substance, its

envelopes, or in the nerve-trunks, to note what Virchow says respecting its anatomical peculiarities.* The gumma presents itself in the form of a nodosity long ago described under the name of syphilitic tubercle, but not therefore to be confounded with the product of tuberculosis, with which it has no relation. As we have already noted, it is not every tumour developed in the course of syphilis which is a gumma. A certain number are of simply hyperplastic character, that is to say, new masses of tissue are produced, which are of the same nature as the mother-tissue from which they proceed. A syphilitic exostosis is composed of bony tissue which presents no peculiar character to distinguish it from any other pathological bony product. A syphilitic tubercle of the skin or a glandular syphilitic tumour, a bubo, may in its intimate structure present the greatest analogy with simple inflammatory cutaneous or glandular tumours. In these different parts the syphilitic product or tumour appears as the result of simple irritation which only gives rise to the formation of homologous tissue. But the other kind of syphilitic tumour deviates from the type of the mother-tissue from which

* 'Die krankhaften Geschwülste,' 1 Bd., p. 76, Berlin, 1863.

it proceeds. A gumma of the dura mater will not pass for a simple thickening or hyperæmia of the membrane; a gumma of the brain appears as something different from cerebral substance, something heterologous; a gumma of the testicle differs from simple induration of this organ. These are so many examples of heteroplastic forms. Now the influence which begets these two kinds of products—homologous and heterologous—is a dyscrasia, by which term Virchow would express the presence in the blood of a substance exercising an irritative effect upon parts of the body. It is usually supposed that a specific dyscrasia gives rise to equally specific products, which, indeed, are taken as proofs of a specific dyscrasia. But this hypothesis is false, for in those cases in which there is most reason to suppose the existence of such a general disorder it often happens that the products are not specific; there may be, indeed, side by side, specific and non-specific products. We cannot, therefore, in the face of this, go back to the dyscrasia and assign to it special characters. For, taking syphilitic exostosis as an instance, we should have to assume a sort of ossifying dyscrasia, or, arguing from the buboes, a sort of cellular lymphatic dyscrasia, and so on. It

is evident that the character of each resulting product cannot be simply determined by that of the dyscrasia. The nature of the part in which it is developed possesses so powerful an influence that it is only when the specific excitation possesses considerable intensity that we observe the formation of similar specific products in different structures. It is to this condition that is due the appearance of gummy products in the bones, connective tissue, and glands.*

The gummy tumour of the surface of bone has long been known. There was found upon bones situated superficially (frontal, clavicle, tibia) a periosteal swelling, flattened and elastic, and containing a mass resembling the gum which exudes from certain trees. For ages so little precision was exercised that hard bony tumours, nodosities, and exostoses were ranged under the same denomination. It is only in comparatively recent times that these different forms have been separated. When it was found that, in cutting gummatous tumours, a sticky fluid presented itself, it was admitted as certain that there was an exudation between the periosteum and the bone. An attentive examination showed, however, that this mass

* Virchow, loc. cit., p. 77.

was not an exudation, but a soft tissue, proliferating with a certain rapidity; that it was not situated between the periosteum and the bone, but that it proceeded especially from the internal layers of the periosteum, and that it presented the greatest analogy with soft mucous tissue. In this tissue is found a soft intercellular substance, gelatinous, here and there fibrillary, with proliferating cells, some fusiform, others round, of different sizes, for the most part pale, and provided with one, less often two or more pale nuclei. The gumma is sometimes not semi-liquid; although elastic and difficult to displace, it is of tolerable firmness. In this case it presents a fibrillar intercellular substance, and includes stellate cells with one or more nuclei as well as fusiform and round cells in larger quantity; these cells are, however, but little developed. From this stage the development makes fresh progress; the mass of cellular elements increases, proliferation continues so as to produce suppuration and ulceration. This, however, is not always the case, but when the cells have attained a certain size they perish, their decay happening at various epochs. Sometimes the retrogression shows itself in the large fusiform and reticulated elements, at other times in the large

round elements, often in the small ones. The periosteal gumma has never a long duration, but shows itself as a transitory product; if its existence be prolonged, that is not explained by the persistence of its elements, but by the production of new elements in the neighbouring parts, a mode of extension termed by Virchow "infection by vicinity."

The degeneration nearly always results from progressive fatty metamorphosis. As this metamorphosis proceeds, the tissue assumes a yellowish opaque aspect. If the cells are of large size, and the intercellular substance dense, the morbid tissue is dry, firm, and caseous; it presents, indeed, an aspect which has much resemblance to tubercle, and is often confounded with it. This caseous matter is therefore the decayed morbid product, a mode of termination, not, as was formerly considered, the beginning of development. It is a dead, degenerated tissue, withdrawn from all organic connection, which may remain for a longer or shorter time in this state.

Its duration is very various. In some cases, after a short time, the masses disappear by absorption, just as is seen, in other places, to happen with the products of simple fatty degeneration. As they disappear, there is a

flattening, even a depression, at the part which they occupied. In other cases the caseous mass has a longer duration, and remains in the condition of a persistent nodosity, but this is more frequent in the parenchymatous organs. In others, again, ulceration takes place, which is produced by the tendency to suppuration, which has been described. The bones rarely present this phenomenon, for syphilitic caries and necrosis, so much to be dreaded, are the result of gummatous development *within* the bone.

The only specific character, if so it can be called, in this syphilitic new formation, is its extreme frailty—the rapid destruction of its cells by a process of fatty metamorphosis or conversion into caseous material.

Such is, in general terms, Virchow's description of the character of the gumma as it may occur in any of the tissues of the body, with certain slight modifications only dependent upon the locality affected.

Long after cerebral disturbances, in the form of paralysis, convulsion, vertigo, trembling, and affections of nerve-trunks occasioning loss of power or sensation, had been recognised as referable to syphilis, it was thought that the nervous substance could only

be indirectly affected through the medium of disease of the cranial bones. It is now known that, although many cases do depend upon such a cause, a probably still larger number occur without the aid of any affection of the osseous structure. The lesion in such cases affects either the membranes, the interstitial neuroglia, or the blood-vessels. Heidenhain* mentions cases of thickening of the membranous coverings of the medulla oblongata and the upper part of the spinal cord (chronic arachnitis) in syphilitic patients in whom there was no bone lesion. A similar case of syphilitic disease of the pia mater is related by Ziemssen. Griesinger† describes a case of chronic meningitis from syphilis, occurring in a patient six months after infection, who was hemiplegic, and eventually became imbecile. At the autopsy Griesinger found the dura mater normal, but the pia mater over the whole circumference of the brain, and especially over the convexity of the hemispheres, was intimately grown together, the arachnoid at the same part being thickened to a depth of half a line or more.

We are reminded here of the striking analogy

* 'Archiv der Heilkunde,' 1 Jahrg., 1 Hft. Leipzig, 1860.

† Quoted by Zeissl, 'Lehrb. der Syphilis,' 2 Theil., p. 286. Erlangen, 1872.

between the condition described and the frequent strong synechiæ characteristic of syphilitic iritis. L. Meyer* considers the intimate adhesion of the dura mater to the soft brain-membranes and the brain as an almost pathognomonic sign of the syphilitic character of the inflammation. He says that adhesion of the brain-membranes to one another, in spite of the numerous inflammatory processes in them, is exceedingly rare. He has never observed them in pachymeningitis. The sarcomata, also, so frequently developed from the inner surface of the dura mater, may force themselves deeply into the cerebral substance, but they do not blend with the arachnoid.

Of the membranes covering the brain the dura mater is most frequently the seat of inflammation in the later periods of syphilis, and two kinds are distinguished, according as the outer (periosteal) layer is affected or the inner (arachnoid) layer. The following is Virchow's description of these lesions.† The affections of the outer layer nearly always present themselves in the form of *external pachymeningitis*, and

* 'Allgem. Zeitsch. für Psychiatrie,' 18 Bd., 3 and 4 Hft. Berlin, 1861.

† Op. cit., p. 448.

belong to the same category as external syphilitic periostitis, since they determine the occurrence of exostoses, hyperostoses, circumscribed gummatous tumours, and dry caries. Even slight changes may be of great consequence when they occupy the points at which important nerves pass, such, for example, as the anterior nerves of the brain, the different nerves proceeding to the eye, and the trigeminus. On the other hand, exostoses of considerable size and gummatous tumours may exist under the vault of the cranium without notable symptoms.

A more diffuse external pachymeningitis extends over large parts of the surface of the cranium, and occasions, together with thickening of the dura mater, considerable atrophy of the inner surface of the skull. If the dura mater be stripped off, the bone appears uneven, with superficial erosions, isolated, or irregular and rounded, or united into figures of jagged outline. Into the depressions of the vitreous table thus produced, thickenings of the dura mater penetrate, consisting, when fresh, of a vascularised granulation tissue; later this tissue becomes dense, and sometimes cretaceous. When this process occurs about the passage of nerves, for example in the neighbourhood of the sella

turcica, there may be paralysis. Or the external pachymeningitis may be connected with grave affections of the bones—gummatous osteomyelitis, suppurative caries, and necrosis. When the outer layer of the dura mater is diseased, the inner layer often presents chronic inflammatory changes, with thickenings, adhesions to the pia mater, and even inflammatory alterations of the adjacent parts of the brain. *Internal pachymeningitis* is often gummatous, but still more frequently, perhaps, of simple character. The gummatous tumours are mostly rounded, lying flat on the dura mater, or penetrating deeply into it, sometimes even seated in the thickness of this membrane. They have a caseous nucleus of yellowish colour, and their periphery is at one time hard and lardaceous, or grey and transparent, sometimes even gelatinous, according as the growth is old or recent. Their size varies from that of a hempseed to that of a walnut, or still larger, and they are seated most commonly either immediately over the convexity of the hemispheres, or at the anterior part of the base of the brain, especially about the *sella turcica*, or in the neighbourhood of the third anterior convolution, or at the level of the basilar fossa. Around them there may be an extended inflammation giving

rise to hæmorrhagic products, and nearly always causing subsequent adhesions with the pia mater. Sometimes the tumours penetrate so deeply into this latter membrane that it is difficult to determine whether they belong to the pia mater or dura mater. The neighbouring cerebral substance often contains gummata. Most frequently it presents softening, either of inflammatory origin or the result of ischæmia, and produced by the obliteration of the afferent vessels. Virchow first showed, in a case of this kind, blocking of the internal carotid, which passed into the midst of the patch. Bristowe has described an analogous case. Meyer has reported many cases of obstruction of cerebral arteries with meningeal lesions. Gildemeester and Hoyack have noted obstruction of the sylvian artery from an analogous cause. Passavant has observed obstruction of the basilar artery. Virchow has also met with a great number of arteries obliterated in a large tumour at the base of the brain. Wilks, Hughlings Jackson, Broadbent, and, I think, some other English observers, have also described examples of syphilitic thickening of the walls of cerebral arteries. The vessels may be obliterated either by the compression of tumours outside them, or by the thickening of their

walls and parietal thrombosis. In an autopsy which I made in 1868, upon a hospital patient, a man, æt. 30, with a syphilitic history, who died with extensive brain softening, I found nearly the whole circle of Willis converted into rigid and knotty cords by great thickening of the walls of the vessels. A condition of thrombosis existed almost throughout their channels.

Occasionally it happens that a circumscribed point of the pia mater is found adherent to the thickened dura mater, and a small gummatous tumour may be discovered in the pia mater itself. This *partial arachnitis*, as Virchow calls it,* produces mostly a compact mass of indurated connective tissue, which presents plentiful cell proliferation, and soon degenerates. Small yellow points are seen scattered in this callous white or greyish tissue, flattened or rounded. The neighbouring cerebral substance is almost always changed; it is either softened, or more dense and sclerous, and, at the same time, of gummatous character. The really characteristic affection of the pia mater is the gummatous tumour, which may here attain a large size—that of a walnut or even a hen's egg. Such tumours are not limited to the pia mater, but may affect

* Op. cit., p. 452.

the brain substance and the nerves. The regions situated behind the chiasma of the optic nerves up to the pons Varolii, and behind the pons to the peduncles of the cerebellum, are favourite seats of these tumours. Gummatous tumours of the arachnoid are to be found, without doubt, at other parts, but they are at their largest at the base of the brain.

The existence of a syphilitic *encephalitis*, as distinct from membranous inflammation, has been very much doubted, and the same may be said of neuritis.

It is remarked by Zeissl* that in the course of dissection of the bodies of acknowledged syphilitic subjects, who had died with grave brain disease, certain cerebral and nerve changes were found which readily explained the motor or psychical disturbances observed during life, but could not be proved to be syphilitic. In the anterior lobes of the cerebrum, for example, seats of softening were noted by Ricord, Ziemssen, and especially by Duchek, in a large range of cases. But patches of softening like these could not be properly put down as a morbid change peculiar to syphilis since they might represent simply the softening which results from various kinds of

* Op. cit., p. 287.

tumours, as well as from hæmorrhage. All that could be said of them was, that they represented consecutive disorder whose commencement might be morbid product of some kind. Together with these patches of softening there were found reddish, yellowish-grey, or gelatinous transparent masses strewed with caseous material, or nodules the size of peas in a state of caseous degeneration in their centre. These seats of disease, which were found in the brains of syphilitic subjects, were differently described and interpreted according to the changes of texture which were recognised. If the circumscribed points of disease were of firm texture, and the neighbouring brain substance unchanged, they were treated as partial cerebral scleroses which depended upon proliferation of connective tissue, and stood in no necessary relation to syphilis. If they were already nearly decayed or degenerated, they were looked upon as inspissated abscesses, tubercle, or scirrhous or encephaloid masses.

In process of time it was remarked that the smooth, hard, fibrous-looking tumours with a soft yellow centre called to mind in a striking manner the gumma as it was found in other organs (liver, testes, &c). And so, at a period

which is quite recent, the syphilitic gumma has been identified in the frequently described and variously interpreted gelatinous or fibro-caseous nodule occurring in the brain.

The gummy tumour of the brain is most often found on the surface or just below it. Less frequently it occurs in the substance of the hemispheres and great ganglionic centres. Next in order the pons Varolii, the cerebral, and cerebellar peduncles are liable to be invaded by these tumours, of which one or several may be found, sometimes of considerable size, but not so large as those which frequent the arachnoid.* In the gumma of the brain and pia mater, which is often of irregular shape, the exterior is a delicate, greyish granulation tissue traversed by numerous vessels, and lost in the neighbouring structures, which are frequently softened in the later stages of the tumour. But it often happens, and especially in chronic cases, that the tumours attain great density and hardness. Not only do the neighbouring membranes (pia mater, ependyma) become thickened, and form cysts for the receptacle of the tumour, but the cerebral substance itself becomes sclerosed, and entire convolutions of the surface or iso-

* Virchow, op. cit., p. 455.

lated portions may be transformed into whitish-grey indurated tissue, which completely isolates the yellow caseous points. These forms, which belong to gummatous encephalitis properly so-called, are distinguished by the boundary between them and the neighbouring cerebral tissue being less marked, their interior less uniform, often interrupted indeed by remains of cerebral substance.

Virchow describes the structure of the recent and soft portions as especially distinguished by its almost exclusively cellular, and sometimes even medullary character. Small round cells containing solitary, somewhat large nuclei, with one or more brilliant but small nucleoli, are found crowded, in a soft, and sometimes fibrillated intercellular substance, in the midst of the cerebral substance itself. When the affection invades firmer tissues, as the dura mater and the sheaths of nerves, the intercellular substance becomes firmer and more fibrillated, and the cells take a more fusiform or reticulated form.

How are we to distinguish these tumours from tubercle? Virchow* allows that the large cerebral tubercle presents the greatest analogy with those gummata which have undergone

* Op. cit., p. 459.

caseous metamorphosis, but he is nevertheless able to speak of distinguishing signs. The large cerebral tubercle, especially when isolated, is generally less rounded, is caseous almost throughout, and frequently softened centrally. The gumma is not always round, but often approaches the form of the part from which it springs, or is composed of a series of isolated, sometimes diffluent, patches, between which the cerebral substance may persist; it is more irregular, nodulous, and diffuse. Generally speaking, there is only a small portion of it which is really caseous; the principal mass is composed of compact connective tissue, distinguished by well-developed fusiform or reticulated cells, or of a soft granulation tissue, rich in vessels, which forms distinct lobes, each of which undergoes caseous metamorphosis. Virchow has never observed central softening in these tumours, whilst, on the other hand, the softenings of cerebral substance so frequent in syphilis do not occur in tuberculosis. As regards the intimate structure it cannot be denied, he says, that nowhere do gummy tumours and tubercle resemble each other more closely than in the brain. The young portions of tubercle are likewise constituted of a tissue with small cells, and the most distinguishing point is, that

in the cells of tubercle the nuclei are smaller than in those of the gumma.

That gummy tumours affect the spinal cord also is doubtless the case, for examples of this lesion have been discovered after death, but their presence in this region has not been verified to the same extent as in the brain and nerves. So also, it is equally certain that the membranes of the cord are liable to syphilitic inflammatory changes like those of the brain.

The cranial nerves, and especially the third, fifth, sixth, optic and facial have been found pressed upon by yellowish-grey gelatinous transparent masses, covered with an indurated envelope. If these masses be cut into certain white points are seen, formerly considered to be nerve bundles which had escaped destruction, but which turn out to be nothing but scattered points of caseous degeneration. Not only the cranial nerve trunks, but those proceeding from the spinal cord may be invaded by gummata, and their functions thereby deranged. On the motor side these may be characterised either by paralysis, or by cramp and contraction of the muscles supplied by them. On the sensory side, the phenomena may take the form of pain, or loss of sensation,

probably according as the existence of the tumour acts by simple pressure or by producing irritation.

The alterations in the nerve trunks may be of two kinds: an interstitial neuritis which is of simple inflammatory character, or an enlargement by nodules like neuromata, but which are gummy tumours.

Quite recently Dr Petrow* has published the results of the examination of the cervical, thoracic, and solar plexuses in twelve syphilitic subjects. The specimens were removed a few hours after death, and the examination conducted both upon fresh preparations, and after they had been hardened in chromic acid. Dr. Petrow found two classes of alteration. One involved the nerve cells, and was characterised by pigmentary and colloid degeneration. The other consisted of hyperplastic modification of the interstitial tissue but slightly differing from that which syphilis causes in other organs, and which involved secondarily atrophy of the cells and nerve fibres. His conclusions are as follows:

1. The syphilitic diathesis acts on the sympathetic, and determines very distinct alterations.

2. The nerve cells may undergo change in-

* 'Archiv f. Path. Anat.,' page 121. 1873.

dependently of the connective tissue, consisting of pigmentary and, less frequently, colloid degeneration.

3. As happens with other organs the connective tissue of the sympathetic undergoes sclerosis with resulting atrophy of nerve elements, tubes, and cells.

4. The endothelium which surrounds the nerve cells participates in the changes. At first there is hypertrophy, with proliferation of cells, later a fatty degeneration.

There is a great tendency to recurrence of gummy tumours. Under treatment the symptoms of paralysis or convulsion induced by them may disappear entirely, only to recur later and eventually cause death. Virchow is of opinion that there is first a proliferation, then fatty metamorphosis and absorption, which diminishes the size of the tumour, and takes off the pressure which has produced the symptoms. If the exciting influence be again exerted, or if the absorption has not been complete, the process takes on renewed activity. Wilks* believes that much of the albumino-fibroid material formed in the true syphilitic stage is incapable of absorption, and remains during the life of the patient. Deposits

* 'Guy's Hospital Reports.' 1863.

of this kind, he says, may be found in the livers of those who have quite recovered from the disease, and have died many years afterwards of an independent malady, or may be observed in those who have succumbed to the ultimate effects of syphilis in the so-called tertiary stage.

CHAPTER III.

CASES ILLUSTRATIVE OF SYPHILITIC NERVOUS AFFECTIONS.

The multiple character so frequently to be observed in the more serious nervous affections consequent upon syphilis, renders well-nigh impracticable any attempt to group them in distinct classes. As I have already remarked, convulsion may be met with alone, or combined with paralysis. One or more cranial nerves may be paralysed independently, or in association with hemiplegia. Paraplegia may be an isolated phenomenon, or along with it there may be paralysis of one or both upper extremities, or of one or more cranial nerves. Alterations in the deep-seated tissues of the eye may be associated with paralytic phenomena in various parts, or with convulsion. Impairment of the mental faculties may be conjoined with one or several of these conditions, or may be entirely absent. Under these circumstances it will be most useful, pro-

bably, if I limit myself to describing the salient points of a certain number of the cases which have occurred in practice, without attempting any serious classification. They will serve to illustrate generally the variety of conditions which may be met with, as well as the circumstances of the patient's health and previous history under which they have been found to occur. Most of the examples adduced will also help to show, what I have already insisted upon, that the syphilitic element must be sought for in such cases by the medical attendant himself, as in the very large majority it will form no element in the patient's voluntary account of his history, and in many instances will fail to betray itself by any signs evident to the eye.

The following case illustrates very well the character of the nervous phenomena which are apt to occur at an early period in the disorder. Having in a previous chapter dwelt upon the frequency with which omissions are made in the detection of the syphilitic basis in many nervous affections, I am not sorry to add this case as an example of one (out of many, doubtless) in which I was myself deceived for a considerable time as to the real nature of the disorder.

Case III.—Several years ago a male patient, aged twenty-six, consulted me respecting certain general nervous

symptoms—fluttering, agitation, palpitation of the heart, from which he had long been suffering. He described also a pain at the præcordia which attacked him in the middle of every night, and a terrible pain at the back of the head, which had troubled him, with brief intermissions, for three or four months. This was sometimes so bad, especially from six to eight o'clock in the evening, that he thought he should lose consciousness. His tongue was furred; pulse 100, irritable, the artery seeming relaxed. The occiput was tender to pressure at one point, and there was a similar point of tenderness below each patella. He himself ascribed his symptoms to very frequent nocturnal emissions, which had troubled him for nine years. His skin seemed hot, but I am unable to give his temperature, as this happened before the introduction of the clinical thermometer into common use. For a fortnight I treated him with quinine with no beneficial effect, the only change to be noted being that the pain now sometimes affected each temple instead of the occiput. One day he mentioned that nine months previously he had contracted a chancre, which remained open for three months, and was followed a few weeks afterwards by a skin eruption, of which he showed me the remains—small brownish-coloured depressions. He had also had sore throat. I now gave him iodide of potassium, followed in a few days by bichloride of mercury. He improved in a few hours, and in two or three weeks had recovered his usual health.

Lancereaux* describes two cases which resemble this. A young woman complained of pains in the eyes and forehead, which she compared to stabs of a knife, and which attacked

* 'Traité de la Syphilis,' Paris, 1874, p. 158.

her in the evenings. On admission into the hospital she presented a well-marked syphilitic roseola. There were several points tender to pressure in the supra-orbital, frontal, malar, and sub-occipital regions. The symptoms yielded after some days to the employment of iodide of potassium. Another patient likewise who had formerly suffered from attacks of intermittent fever, on the appearance of a rubeolous eruption was attacked with a frontal neuralgia of periodical recurrence, for which sulphate of quinine was given without result, but to which, on the contrary, iodide gave speedy relief.

Functional disorders of the digestive organs and circulation, accompanied by vague nervous sensations, are very frequently dependent upon syphilis, and are especially likely to give rise to mistakes of diagnosis, the stomach or liver being described by the patient himself as the offending organ. Here is a case in point:

Case IV.—A male patient, aged twenty-three, consulted me on account of constant indigestion and headache, associated with attacks of faintness, which had been occurring about once in every three or four weeks for six months previously. In the attack he would turn pale, and, as he described it, there would be a feeling of impeded circulation in his extremities, and the veins of his hand would diminish to the size of threads. He had never

actually lost consciousness, but was always able to struggle against the attacks, which sometimes ended in vomiting. He suffered very much from noisy flatulent dyspepsia, and to this cause referred his attacks of faintness. By constitution a healthy young man, he had led a fast life, and three years previously, as I chanced to know, contracted a chancre, which had been followed by a skin eruption. Having been acquainted with him for several years, I was now able to notice a great alteration in his appearance. He was very weak, his complexion of a pale earthy hue, his pulse feeble, and pupils unduly large. He had so lost nerve that he could not mount a horse. He suffered frequently from palpitation; the heart sounds were normal. Knowing his antecedents, I put him at once upon iodide treatment. In a week his general health was very greatly improved, but he now showed me a small, but not deep, ragged ulcer on one tonsil. To this sulphurous acid was applied. The specific remedy was continued, and by the end of a month he felt perfectly well. There had been no return of faintness; the throat had healed; his digestion had ceased to give him inconvenience; the pupils of his eyes had resumed their normal appearance. On one occasion only he had noticed that the veins of his hands suddenly contracted. I directed a continuance of treatment, and then lost sight of him for eight months. He had continued his medicine, it seemed, for four weeks, and had remained quite well for several months. He now complained of a tender spot on one of his ribs and on his heel, in both of which situations I found a small periosteal swelling. The same treatment as before was resumed with immediate good effects, but there still remained a tendency to a return occasionally of sudden and transient want of circulation in his hands. I then added a sixteenth of a grain of bichloride of mercury to his iodide, and gave him this

three times daily. Under this treatment he speedily lost all his symptoms. In the following winter I was called to him, and found him suffering from symptoms closely resembling subacute rheumatism—fever, pain, swelling of joints, and insomnia, which had troubled him in the country for several weeks. For this he took ten grains of iodide every four hours, and in a few days he had recovered completely. This was a case which, there can be but little doubt, would have resulted in marked epileptic seizures under any but specific treatment.

There was much resemblance to many of the symptoms of this patient in those of another who consulted me about the same time, but whose progress I had not the opportunity of observing closely. He had become epileptic, and the phenomena described occurred in the intervals of his fits.

Case V. — The patient, æt. 32, came to me complaining of extreme weakness, confusion in the head, and sense of weight in the forehead and vertex, flatulent dyspepsia, and loss of flesh. Two years previously he had first had an epileptic seizure, the immediate warning of which was a feeling as though his tongue swelled, and had since had, I think, two or three only at long intervals, the last having taken place the week before his visit to me. It had occurred in the night, and he only knew of it from finding his tongue bleeding in the morning, and a bruised sensation in his limbs. He was cachectic in appearance, with a furred tongue, and feeble pulse. He described a sensation of tingling in both hands, and of grains of sand running down the right side of his face. He had for some

time been unable to sleep at night. He was daily subject several times to a sudden feeling of want of breath, and coincidently the veins on the back of his right hand would assume the appearance of blue threads. Whilst in my room he was so attacked, and I was able to observe this latter phenomenon. I noted also that he moved the right leg clumsily, and he described that it and the corresponding arm felt numbed. He felt, when the contraction of his veins occurred, that without a determined effort on his part he would become insensible; and this effort he was able to make. It should be said that he had formerly drunk a good deal, but there seemed reason to believe that he was no longer indulging in any great excess. I saw him very irregularly, and at long intervals, for about a twelvemonth. On each occasion I prescribed iodide for him, and always with immediate relief to his symptoms; but he failed to persevere in any regular course of treatment. This patient came of a family which had no neurotic history, and he was thirty years of age when his first fit occurred. Six years before this attack he had suffered from chancre, for which he had taken mercury until, as he expressed it, he "tasted copper." He had never had any skin eruption or bad sore throat. As he was a man of superior intelligence, and showed no reservation in speaking of his history, I think this statement is to be relied on.

In such cases as these it is probable that the lesion lies in the membranes of the brain.

It is worth noting, as regards the symptom of sleeplessness, that the occurrence of prolonged insomnia, without any evident cause, should always suggest an inquiry into the history as to the existence of constitutional

syphilis. This applies at least as strongly to children affected with this symptom, as they may be suffering from the inherited disease. If this should be the case the insomnia will quickly yield to specific treatment, after having defied all other means to overcome it.

The following is a very interesting case of paroxysmal aphasia, which circumstances showed was of syphilitic origin, although the patient was not aware that he had ever had a chancre:

Case VI.—A man, aged thirty, whom I had attended a year and a half previously for a trifling disorder of digestion, came to me so altered in appearance that I recognised him with some difficulty. His complexion was of a peculiarly muddy pallor, and his manner was extremely dazed and stupid. His speech was laboured and indistinct, and he said that he had to think much before he could find the right word to use. He could not remember names, and had observed that in writing he frequently substituted one word for another. He walked without a halt, his grasp was equally good on either side, and there was no traction of his mouth.

It seemed that two months previously, whilst at dinner, he suddenly lost his speech without any failure of consciousness, and an attack of precisely similar character had occurred five or six times since. Described in detail it was this. He suddenly found himself unable to hold things with his right hand. A peculiar sensation then travelled up from the first two fingers of that hand into his arm, which became numbed, so that he could not move his fingers. Thence it passed to the right cheek, which it

seemed to draw up as in a knot, and his tongue was then drawn over to the right side, so that for a minute or two he could not speak a word. In a few minutes the sensation disappeared, and the arm resumed its normal condition. But the power of articulation still remained impeded to the extent which I observed. The attacks described had occurred, on an average, once in ten days. He had been under medical treatment, in the course of which he had taken bromide of potassium, but without effect in preventing the attacks, one of which had happened ten days previously. Urine acid, 1028, free from albumen or sugar. With the exception of dyspeptic ailments, his general health had been good; but I elicited that five years before he had suffered for no less than thirteen months from an ulcerated sore throat, of which the tonsils still showed slight cicatricial traces. He had never, to his knowledge, suffered from chancre, but was affected with gonorrhœa at the time when his throat became ulcerated. He was ordered ten grains of iodide of potassium with twenty of bromide of ammonium three times daily. After five days he spoke more clearly, and had experienced no return of the loss of speech nor of the queer feeling in his arm. His intelligence was brighter, and he told me, with some amusement, that for weeks past he had been dull and stupid to a degree. As an example of this he mentioned that he had constantly caught himself making puns, an occupation which was not at all his natural habit, and which vexed him much. Ordered fifteen grains of iodide with twenty of bromide three times a day. In three days more I found his complexion very much improved. His speech was still embarrassed, but he had no return of the "sensations." He had now been free from them for three weeks, having never previously gone more than ten days without an attack. Ordered twenty-grain doses of iodide. This he fancied did not agree with him,

so, after taking it for four days, I reduced the dose to five grains, and combined with it one sixteenth of a grain of bichloride of mercury.

It is unnecessary to give his further progress in detail. Mercurial treatment was continued, broken on one occasion by the occurrence of diarrhœa, and he gradually improved vastly in health. On one or two occasions, either from overwork or exposure to a hot sun, he got a slight thrill in the first two fingers of his right hand, but he had no return of the transient loss of speech, and his articulation at all times became quite distinct. Ten weeks from the time of his first visit he felt as well as he had ever been, and was quite able to attend to his business.

The curious muddy pallor of this patient, and his dazed expression were such as I have frequently noted in patients affected with nervous symptoms which there has been reason to refer to syphilis. They are phenomena which form no part of ordinary epilepsy, and are peculiar, so far as I know, to cases of this description. No doubt, shortly after an ordinary epileptic seizure something of the same kind may be observed, in consequence, probably, of the blood not having as yet recovered its normal aeration, but in the present case, and others resembling it, the condition is a permanent one, enduring throughout the intervals of the attacks. It is a sign well worthy of being especially noted. The attacks of transitory aphasia, followed by persistent ataxy of articu-

lation, from which this man suffered, are of a kind frequently noted in syphilitic affections. Lancereaux relates a case in which he diagnosed a gummatous tumour of the membranes, situated in the neighbourhood of the third (left ?) cerebral convolution in a female, æt. 43, who had syphilitic antecedents, and after complaining of fixed pain in the left side of the head, was attacked with epileptic seizures, followed at first by a total loss of speech, and afterwards by great difficulty in the pronunciation of articulate sounds for the period of a fortnight. According to Dr Hughlings Jackson, an affection of the membranes on the surface of the left hemisphere anteriorly may originate this symptom, by causing disordered circulation in the middle cerebral artery.

I met with a case at the hospital a short time ago, which seemed at first to be of this description, but the patient's history makes it very doubtful. It is a good illustration of the fact that the mere occurrence of syphilis in a patient should not lead us to jump to the conclusion that his nervous symptoms necessarily depend upon this cause.

Case VII.—A man, æt. 28, complained that in the course of the past seven years he had been attacked four or five

times with a "mistiness," followed by imperfect power of articulation. The first attack was on the day following a bad sick headache. He found that he could not express himself to a friend, who laughed at him in consequence. He could say words, but not what he wished to say. Asking to have the fire shaded from him, he said "table." He never had any abnormal sensation in the right side of his body. Besides these seizures he suffered from daily giddiness, which was worse towards the evening. It was like the motion of a vessel. The pavement seemed to sway, and he often chose the rough road in preference. He never lost his senses, although he often felt that if he continued walking he should do so. I learnt that five years previously he had a sore, accompanied by a non-suppurating lump in the groin, for which he took mercury till his gums were sore. This was followed by soreness of the tongue, and last year spots appeared on his face and limbs. On examination I found that his heart was considerably enlarged. There was no albumen in his urine. He acknowledged being rather a "free liver." If this man's story be correct his first attack of passing aphasia occurred two years before the syphilitic infection. The pathology of the affection in his case is obscure, but the attacks may be owing, possibly, to disordered circulation arising from the state of his heart.

There is evidence of intracranial disease in the following case which offers a good example of this transient loss of the faculty of expression:

Case VIII.—A man, æt. 42, had a sore in 1854, for which he took mercury, but not to salivation, accompanied by indurated buboes, and followed by slight cervical glandular swelling and lichenous eruption. In 1864 he had another,

which readily yielded to iodide of potassium, but was followed by pustular eruptions on the face and shoulders. He was salivated in 1866. In 1871 he had a pustule on the left forearm, evidently a subcutaneous gumma, which has left a scar. Whilst the sore was open he was standing one day by the fire, when he suddenly felt that his right arm was powerless, and began to give foolish answers, being conscious that he was using one word for another. During dinner this went off, but he had a dizzy feeling and bad headache, which lasted ten minutes. About two months afterwards he felt that his left leg dragged; he went to bed, and at the end of the day the power returned. He did not lose consciousness on either occasion, and the faculty of speech was not affected during the second attack. In July, 1872, he sometimes found that during dinner he could not say anything, although he was quite conscious and able to eat. A paroxysm would last perhaps half an hour, and would not recur the same day, but only occasionally. In September, 1872, he was unconscious for a day, but did not lose the use of any limbs. Shortly afterwards he had another attack, and was unconscious for ten days or so. On recovering there was nothing wrong with his limbs or his power of speech. Since then he has twice lost his speech; one day on getting out of a cab he almost lost himself for two minutes; he did not fall, but was unable to speak; he paid the cabman correctly. In October last he lost his speech again, and now it is a little thick. A friend of his tells me that in his first attack he lost his speech, more particularly after meals; he spoke, that is, very little, and in an unintelligible manner, using wrong words. He did not seem provoked at this, but rather laughed, and made a joke of it. In August, 1871, at the dinner table one day he suddenly failed to speak, and wrote the following:—"I pay paper do wrote," "ink," "printed,"

"pen," "pencil," "I want irritating first to paper (blank paper) quanty pencil pen ink and quanty quite paper." I ought to say that he is of exceedingly temperate habits.

In April last he began to have pain at the upper and outer part of the right humerus. At first this would wake him up once in the night ; but it became worse, till it kept him awake nearly all night. For this he underwent a variety of treatment, the only relief he obtained being, as I ascertained from his prescriptions, whilst for a short time he took iodide of potassium. When I saw him first in January, 1874, he was in a very cachectic state, and worn out from want of sleep, and I found a node on the right upper arm, and a smaller one in a corresponding position on the left arm. Under doses of iodide of potassium, rapidly increased from fifteen to thirty grains four times a day, and cod-liver oil, he lost all pain within a week, slept well, and his general condition at the present time is strikingly improved. I should note here that about the time of his attacks he occasionally had a subjective sensation of smell, lasting two minutes. The odour he describes as being strongly pungent, but not offensive.

The following case I lately saw in consultation :

Case IX.—The patient, a male, æt. 31, had a sore in 1867, followed by secondary eruption, and a few months afterwards by nocturnal pains and sore throat. Three years afterwards he lost a large piece of the hard palate by necrosis. A twelvemonth later he had paralysis of the third nerve, causing external strabismus, ptosis, and dilatation of the pupil, first on the right side for four weeks, then on the left side for three months. The symptoms

disappeared under plentiful doses of iodide of potassium. About the same time there was considerable alteration in his character. He became silent, sullen, forgetful, and somewhat foolish. A year later he had periostitis in the right elbow and shoulder, afterwards in the right knee. These affections were relieved by iodide of potassium. On one afternoon in June last he began to talk nonsense—German and French mixed up together; he went to sleep, and woke up as he was before. No return of this took place till September, when he had an attack of the same sort, followed by an epileptic fit. In October he again lost his speech for some hours, and could not write. His own description is, that in the attacks he knows what he wishes to say, but either cannot utter a word or talks nonsense, and is aware of it. On one occasion during an attack of this description he had a great sense of numbness in the right arm. He has never suffered from headache. He shows no sign of disease of the circulatory apparatus, and the ophthalmoscope discloses no changes in the eye. He has still some ulceration at the root of the uvula, and slight periosteal enlargement.

With the foregoing cases I may class the following, in which passing loss of speech was associated with spasm of the right upper extremity:

Case X.—A wife, aged thirty-two, gave me this account of her symptoms:—Nine weeks before, she had felt one day that she could not get her words out, then lost her speech altogether, and had a jerking in the fingers of her right hand for two hours, during which she did not lose her senses. Then she managed to articulate some intelligible words. An hour afterwards she felt something run

up her right leg, "just as if the dog had run up it," and an indescribable sensation took her in the right hand and right eye (the eyelid, no doubt), which severely jerked and quivered, and her teeth chattered; this condition lasting about fifteen minutes. These fits, always without loss of consciousness, were repeated at short intervals for two or three hours. She appears then to have received some very appropriate treatment (iodide and mercury), and the fits left her for two months, when they returned after discontinuance of the remedies, and she came to the hospital. Her aspect was not unhealthy. I found the scar of an ulcer at the junction of the hard and soft palate, and she acknowledged that there had been an aperture at that point for some months, which closed under the specific treatment. Five years previously she had noticed spots about her, and had suffered from sore throat. For three months before the fits she had experienced dreadful headache, worse at night. She had produced six children, of whom only one survived. The other five had died of "teething" or "consumption," all at about fifteen months old. She had besides miscarried twice. The living child had suffered from a sore under its arm. I gave her large doses (fifteen and twenty grains) of iodide for six weeks, and she had no recurrence of fits. Then I lost sight of her.

Here is another instance of attacks of spasm in the right upper extremity, occasionally attended with loss of consciousness:

Case XI.—A man, æt. 38, who had been remarkable for his powerful physique, applied to me on February 12th, 1873, on account of attacks which he thus described. He would get a tingling in the thenar eminence and

knuckles of the right hand, and this travelled up the arm, which became contracted and "worked" very fast; thence it spread on the right side of his trunk, and worked his intestines into a ball; thence up inside his throat to the back of the neck, and deep into the ear. Then a "working" took place between the ear and eye, and his eyelids screwed up; then he lost his senses. From the onset until he was insensible, fifteen minutes; duration of unconsciousness, about ten minutes. Whilst insensible the tongue was bitten. On two occasions the fit had stopped short of insensibility, and then the right arm and right side of trunk were convulsed for an hour. He could not stop the movement, although he knew what was going on. Such attacks as those described he had been having every fortnight or three weeks since November, 1871. But besides these he had suffered still more frequently from seizures in which he did not lose himself, but which were characterised by symptoms of this kind. He felt great pain in the elbow, fingers, and shoulder of the right arm, as if the extremity was being wrenched off. The pain then extended to the intestines, testicles, and fundament. Both before and after the seizure he would pass a large quantity of urine, and much flatus. He told me that if he rubbed his right arm or leg when an attack was coming on, he would bring up much wind.

The man was pale, with a furred tongue, extremely languid, and very liable to get faint and giddy. His right side was apt, he said, to get very cold, and sometimes very hot, and then there was excessive sweating on that side. He nearly fainted whilst describing his symptoms. He was reduced to great necessities from being unable to work.

The general health of this patient had been excellent. Fifteen years ago he had a chancre, which was followed by attacks of sore throat, but not of severe character, and by a

scaly eruption on the scrotum and thighs. In the winter of 1868 he had neuralgia all over the right half of his head for four months. It was accompanied by swellings as if of the bone, which were very tender to the touch. I found on examination that on his legs he had purplish-red papules, inclined to scale. He said that they itched when he was warm in bed, and that he had seen them more or less for three years. There was nothing wrong with his heart or kidneys, and the ophthalmoscope showed the fundus oculi to be normal on each side.

He was ordered twenty grains of iodide of potassium with ten of bromide of ammonium three times a day. On February 26th the dose of iodide was increased to thirty grains, and on March 5th to forty grains. Cod-liver oil was also prescribed. On March 12th it is noted that he had experienced no return of attacks since the treatment commenced. I now gave him one drachm of the Liquor Hydrargyri Perchloridi with ten grains of iodide three times a day, and this treatment was continued for some months. He had no seizure. On one or two occasions in March he had a slight tingling running up the arm. My last note is dated June 25th. He had been at work for four months, and had not had any attack since February.

The following cases illustrate many of the points to which I have already referred, and, especially, the difficulty of finding any system of classification quite suitable to this class of disorders:

Case XII.—A wife, aged thirty-seven, of whose case I find only a brief note, had ptosis of the left eyelid, dilatation of the corresponding pupil, imperfect left hemiplegia, with numbness of the left side of the face, imperfection of

taste and smell, and sluggish action of the recti muscles supplied by the left third nerve. These symptoms were quite recent, but for five or six years she had been liable to faint away once or twice daily. Fourteen years previously she had a chancre, and for five or six years afterwards she had annually a bad sore throat, lasting some weeks. She had produced six children, of whom three had died in fits or "consumption," and one, then living, at six weeks old had developed an eruption on its face which lasted three months. She herself had never seen any spots on her skin.

Case XIII.—Another wife, aged thirty-four, who applied the hospital, had suffered from "congestion of the brain" twelve years previously, and was quite out of her mind for some weeks. This was followed by fits, which recurred at intervals of a few weeks for six years, and afterwards with longer delays, till, two months before I saw her, she began to get constant shaking of the left limbs, with occasional fits. She had been quite well before her marriage, at twenty years of age. She had borne one living child, which died when four months old of "bronchitis;" and had miscarried six times. She had suffered from eruptions of pimples on her back and chest, and had frequently had sore throat, lasting two or three weeks, and dreadful headache, increased at night.

Case XIV.—A man, aged forty-three, had a succession of fits for several days, eventuating in maniacal excitement, about nine months before his application to the hospital, and since then two at a few months' interval. I found the right angle of the mouth lower than the left, and the grasp of the right hand feeble. He reported that about nine months before his fits began he had suffered from bad eyes,

and had been blind for three days. Nineteen years previously he had been affected with chancre and indurated bubo, which were not followed by sore throat or general skin eruption. He showed me a patch of squamous eruption on the scrotum, which had been there for a very long time. Great pains in the head had preceded his fits. He improved at first very much under specific treatment, and the grasp of his right hand was quite restored to its normal power; but after some months I learnt that he had lost the use of both legs; and as there was no room for him in the hospital, and he could not attend, I saw no more of him. His domestic history was this: Married six years; wife had miscarried twice, and had produced, besides, four children, of whom one was stillborn, one died in convulsions at four months, and one at a few months of diarrhœa; the living child had "a very large head, and was liable to a screaming cry of very peculiar kind."

These latter examples—and they are types of a class which is common enough—incidentally throw a strong light upon the probable cause of a vast amount of the early mortality in children from fits, so-called "teething" and "consumption." There can be, I think, but little doubt that the syphilitic element inherited from the parents often plays a most important part in the production of these conditions, and that this is very frequently overlooked. As regards the pathology of these particular cases, the result necessarily leaves it in some doubt. In Case XI, however, there is evidence of tumour,

probably in the neighbourhood of the left hemisphere anteriorly. In Case X the concurrence of perforation of the palate (a tertiary lesion) would point to the probability of a gummatous intracranial formation, and so, perhaps, would the long duration of the disease in the third case. In Cases XIII and XIV it is probable that there had been more or less diffused inflammation of the inner cerebral meninges, leading to the "congestion of brain" and maniacal excitement which are noted in these cases, and to exudation and subsequent thickening of the membranes in certain parts.

I may conveniently class together here a series of cases in which alterations in the deep-seated tissues of the eye either accompanied or preceded paralytic or convulsive affections. And I will refer first to an instance in which, although there is a syphilitic history, and the symptoms would incline one to believe in the specific origin of the affection, the results of treatment afford no support to this idea. If it had no other value, it would be interesting as an illustration of the fact that the diagnosis of these affections is at times attended with great difficulty.

Case XV.—A man, æt. 32, who had suffered from syphilis ten years previously, attended at the hospital on account

of fits from which he had suffered during five years, and extreme giddiness. He also complained of an extraordinary amount of noisy flatulence; "extortionate," he called it. What that designation may imply I do not know, but he was quite remarkable for the stormy gusts of flatulence which burst from his mouth whenever he consulted me, and which greatly interfered with his description of symptoms. The condition reminded one of a certain form of hysteria in woman. It seemed that five years previously whilst carrying two hundredweight he had a bad fall, in which he struck his occiput, and lost his senses for two hours. He was taken to a hospital, where he stayed nine weeks, during six or seven of which he was insensible. Soon after coming out he had a fit, and since then had been liable to fits, once in a week or so, and two or three at a time. I should hardly venture to include this case in the category of syphilitic nervous affections, but that the ophthalmoscope showed evidences of old choroiditis in each eye, and partial atrophy of the right disc—appearances which were noted also by my colleague Dr Gowers, who examined his eyes. Whether the injury is alone responsible for his attacks, or that this formed a starting-point for syphilitic manifestations, I do not know. I relate the case without committing myself to an opinion upon it, especially as I failed to observe any marked benefit from specific treatment, and as I learnt from the patient that he had indulged freely in drink.

In the following case, too, there was a history of injury which threw some doubt upon the nature of the case, otherwise resembling a syphilitic affection:

Case XVI.—A discharged soldier applied at the hospital with left hemiplegia on October 16th, 1872. It seemed that two years previously he had been seized with severe pain in the head, from back to front, chiefly on the left side, and worse at night, and when this had lasted for nearly two months his left arm and leg one day "went to sleep," and he found that he could not rest his weight upon his leg and could do nothing with his arm. He was quite helpless for two months, and then got somewhat better. I found that he was partially paralysed in the left arm and leg, the former being a good deal wasted; the limbs not stiff. He suffered occasionally from vertigo. He told me that seven years previously his horse had fallen upon him, and he was hurt at the back of his head. He bled very much, and lost his senses for two or three hours. Ophthalmoscopic examination showed traces of lymph upon his discs, best marked in the right eye, probably from old optic neuritis. He had had a venereal sore ten years previously, followed by some skin eruption. An aortic regurgitant bruit was perceptible at the base of the heart. I took him into the hospital, gave him large doses of iodide and faradized his muscles. Under this he improved considerably, but never regained completely the use of his limbs.

A similar appearance on the optic discs, probably resulting from optic neuritis, was observed in the following case of convulsions, beginning at the age of twenty-three years, in a man who had suffered from syphilis:

Case XVII.—A man, æt. 25 (married 3 years, 1 child, wife miscarried once), had suffered from fits for nearly two years—about one in ten days. The fits always took place

in the night, and he bit his tongue. Four years previously he had had a sore with "little knots" in the groin, which went away without suppuration as the sore healed. The sore was open for six weeks, and he was under treatment for three or four months. I found on examination with the ophthalmoscope that there were glistening white fibres following the course of the vessels on the right disc. Under iodide and bromide of potassium he had scarcely any fits for six months. Then I lost sight of him.

The following case, which I have now under treatment in the hospital, offers a good example of double optic neuritis, with convulsions affecting especially the right arm:

Case XVIII.—A compositor, æt. 33, cachectic in appearance, married ten years, one child living, one dead, applied to me at the hospital on June 11th, 1873, on account of fits, of which he had had nine in seven weeks. The first fit occurred when he was in bed and asleep, and two hours afterwards he had a second. A week after this attack he had four fits, with an interval of an hour or two between each. In these fits he describes a contraction occurring in both arms. He then lost his senses and bit his tongue. After the next attack he lost the use of his right limbs and speech for a quarter of an hour. He tells me that he wakes up with pain in the left temple, and that for eight months past he has suffered much pain in the left side of his face and temple—a darting and shooting pain. It would occur, perhaps, once or twice a week, and make him jump. His face would swell up with it, and was tender to the touch. It seems that twelve or thirteen years ago he had a sore, which was open for two months, and for which he was treated with mercury to salivation. At the same time there was a lump in his groin,

which did not suppurate. He had afterwards an eruption on his skin. He was ordered ten grains of iodide three times daily. On June 25th he said that he felt much stronger and had had only two slight fits. Repeated the iodide. On July 16th he said that he had had six fits. He was now ordered thirty grains of bromide twice a day. July 30th.—He had had four fits, one very severe. Ten grains of iodide were now given twice a day with thirty of bromide. August 13th.—He had had no fits. This treatment was continued till October 29th, when the dose of iodide was increased to fifteen grains. I have no note as to the ophthalmoscopic appearances during this time. I presume, therefore, that he had been examined and that nothing abnormal was observed. On November 26th he came complaining of much loss of power in his legs and of pain across his eyes. He said that for six weeks past his sight had been much weakened, so that he could not read. I examined his eyes with the ophthalmoscope and found the following appearances:—In the right eye there was no outline to the disc, which was of a pinkish-grey colour, swollen and prominent, and merging by imperceptible gradations of colour into the choroid. The arteries were small and lost at various points; the veins were large, dark, and very sinuous; at certain points, indeed, they appeared to turn suddenly at a sharp angle, suggestive of a "kink" in wire. In the left eye the appearance was of the same character, but less pronounced. Dr. Gowers, who tested his visual powers at this time, informs me that he could read No. 1 Jaeger with either eye.

December 10th.—Admitted into the hospital and ordered Liq. Hydrarg. Perchloridi ℥ss with Pot. Iod. gr. xv twice a day. On the 29th he informed me that he had eleven fits, in only one of which (the first) he lost consciousness. The fit begins in his face, his mouth is twisted

on one side and his jaws are fixed. This lasts two minutes; then it comes in the right hand (always in the right hand), and this gets drawn up. In all the fits except the first the symptoms entirely consist of contraction of the fingers, then of the wrist upon the forearm, and then of the forearm upon the arm. If he could get any one to draw his arm forcibly down it would stop the attack. January 3rd.—Has had several attacks, but of slight character. 9th.—The left eye has nearly lost its morbid appearances. In the right there is great improvement; one vein still much diverted. Still some streakiness of the retina and the disc margin still obscured. January 20th.—Has had two fits, in one of which he lost his senses. He was now ordered Hyd. c. Cret. gr. iij twice a day. His general condition had much improved, but the persistence of seizures induced me to try the effects of more complete mercurial treatment. On February 16th I found on examining him with the ophthalmoscope that his eyes had quite recovered, and he had had no attack for more than a fortnight.

Here is a case of eclampsia, accompanied by optic neuritis affecting one eye:

Case XIX.—A railway porter, æt. 29, applied on March 13th, 1872, having had seven fits since September, 1871. On the first occasion he felt a swimming in the head and fell down on the platform, lost his senses and was convulsed, not becoming conscious for four hours. He did not bite his tongue. The other fits were of the same character. He does not know whether the convulsion was unilateral or not. Previous to the first fit he had suffered for a year from attacks of headache at irregular intervals, accompanied by vomiting. He had entirely lost the sense of smell for six months, but he sometimes had *subjective* sense of a

brimstone odour. There was ulceration of mucous membrane of the nares. The ophthalmoscope showed the outline of the right disc much obscured and swollen, the vessels tortuous and in part lost. He had had a sore nine years previously, and attacks of sore throat, once lasting three weeks, but never any skin eruption. Two years ago he had a lump in the groin, which suppurated and was lanced. His last fit occurred four days before his application to me, and three days previously he had had two fits of severe character. He was ordered ten grains of iodide with twenty of bromide three times a day, and this treatment was continued for seven months, during which he had no fit; his headaches had much diminished and the sense of smell improved. On October 6th he had a fit. He was now ordered Liq. Hydrarg. Perchloridi ʒss with Pot. Bromid. gr. xx three times a day, which he took till February 26th, when he had two fits. I then gave him a drachm of the perchloride solution with ten grains of iodide three times a day. He had no return of fits, but as he still complained of headache I ordered him on March 12th, 1873, three grains of Hyd. c. Cretâ twice a day. Under this treatment he very greatly improved; he had no fits, lost his headaches, and felt perfectly well. He continued to follow his occupation, taking this dose, until January 16th, 1874, when his gums became sore. He now had a fit for the first time for nine months. At the present time the outline of the right optic disc remains still a little obscure and the vessels are somewhat tortuous. He has not absolutely recovered, therefore, from the old optic neuritis.

I may include here a brief reference to a case now under observation, in which double amaurosis from old disseminated choroiditis is

associated with loss of power in the lower extremities and increasing intellectual impairment.

Case XX.—A male patient, æt. 51, came to me in October last, having lost his sight at the age of 38 years, after a few days' pain and uneasiness in his eyes. He was of powerful physique, with excellent family history. No disease of heart, or blood-vessels, or kidneys. He had worked very hard. The amount of sight retained was just sufficient to enable him to get about without assistance, but not to read. I found on examination with the ophthalmoscope that in both eyes the fundus was covered with numerous white pigmented patches. There was difficulty in gathering any distinct account of his general condition since the loss of his sight, as his memory was bad and his manner odd and flighty. He staggered in walking and occasionally would feel what he described as a "sort of giddiness" in his hips, and his legs would give way. There was want of power to empty the bladder, and constipation. Two years previously on one occasion he had lost his speech for a few minutes. He complained of peculiar sensations, in his right arm and leg especially. It seemed that eight years before his eyes were attacked he had a sore, which was followed after six weeks by slight sore throat, and four months later by copper-coloured spots on his forehead. I have given him iodide, which he thought did him some good, and some calomel baths, but he has not shown any real improvement, and his case is a very unpromising one; indeed, he shows signs of drifting into a state of dementia. I cannot help regarding this case as one which would probably have taken a more favorable course had the patient been submitted, from the time of the attack in his eyes, to systematic antisyphilitic treatment. Disorganiza-

tion of cerebral substance had too far advanced, as it seems, when I saw him for such treatment to have much effect. Instances, however, do occur where even at a very advanced stage appropriate treatment has stopped the progress of what seemed a very hopeless condition, and I thought it right, therefore, to give this patient the only chance which was open to him, although I did not expect that it would be successful.

The following is an example of the multiple character of the nervous affections in syphilis, to which I have already adverted as so often characteristic of these disorders:

Case XXI.—A wife, aged 34, was carried into the hospital consulting-room with complete paralysis of the right arm and leg, and to a certain extent of the right half of the face, ptosis of the right eyelid, traction inwards of the right globe, which could not be turned outwards beyond the middle line, and not at all upwards or downwards, dilatation of the right pupil, some loss of sensibility in the face, and to a less extent in the limbs of the right side. There was thus, besides the condition belonging to ordinary right hemiplegia, paralysis of the third, sixth, and partially of the fifth nerves of the right side. It seemed that three months previously her right eye became turned inwards gradually. Two months afterwards, on rising one morning, she felt a numbness of the right half of the face and right extremities; and a fortnight after this she rapidly lost the power of moving the right arm and leg. Her speech, too, became indistinct. The arm, a few days before she applied at the hospital, became rigidly contracted, the leg remaining limp. The sight of the right eye was very imperfect, and the ophthalmoscope showed partial atrophy of the disc.

Before her attack of numbness she had suffered for some time from great pains in her head, worse at night. On inquiry I ascertained that she had been married eight years, had produced two still-born children, and none living at birth. Her husband, whom I sent for, presented on his forehead a large patch of serpiginous ulceration which had existed, he said, for two years. *He* acknowledged that ten years previously he had suffered from a sore which had been followed by spots on the skin. *She*, however (and this is interesting), utterly denied ever having a skin eruption or sore throat, and asserted that she had enjoyed excellent health until this attack, and had been, indeed, a very active person. She presented no cachectic aspect, and said that she slept well and had a good appetite. She had no signs of disease of the heart, blood-vessels, or kidneys. She was treated with ten-grain doses of iodide three times a day for two months, and then she walked fairly enough with a stick, and reported herself as very much better in every respect except that she could not move her arm. Unfortunately, at this point my notes are defective, so that I am unable to give details of her improvement, and she does not appear to have again attended at the hospital. Even with this drawback I record the case, as it is one eminently characteristic of syphilitic lesion, and illustrating many points of importance, not the least being the existence of grave intracranial lesions in a person who showed no other external signs of syphilis, and who denied that any of the more common symptoms had ever occurred. The evidence, indeed, may be said to be entirely circumstantial, but is nevertheless convincing.

Of far less importance, from a clinical point of view, is it to endeavour to localise the lesions in such cases. I suppose there were two. At

the onset gummatous deposit at the base of the brain, in the right side of the middle fossa of the skull, involved the sixth, third, and in part the optic tract, and this was followed by a similar lesion in the neighbourhood of the left corpus striatum. No one lesion, so far as I know, would account for the whole train of symptoms. Whether or no there was disease of the periosteum or bone at these parts, or whether the pia mater alone was involved, there is no evidence to show. The rigid contraction of the arm occurring at a late period as a sequel of the paralysis was an evidence of mischief to the motor tract of a kind which did not admit of repair.

As an instance of recovery from a most grave condition the following case, of which I confine myself to an abstract, is very interesting. I showed the patient before the Clinical Society this session quite recovered, and his case will, I hope, be published in detail in the 'Transactions' of the society for 1874.

Case XXII.—A working man, æt. 45, of previous good health, was brought to me on January 8th, 1873, in the following condition:—He had double facial paralysis, total absence of power of voluntary contraction in the muscles of either leg, grasp of hands almost entirely lost, partial paralysis of deglutition and of respiration, cutaneous anæsthesia more or less general throughout the trunk, extremities, and face.

There was thickness of utterance. His breathing was so difficult, and his general condition so alarming, that I feared to allow him to return home, as it seemed likely that he might die on the road, and therefore at once admitted him into the hospital. His attack commenced, it seemed, on December 10th with numbness in the finger ends and weakness in the legs, which increased day by day, so that on the 14th he was confined to his chair, unable to move his legs, and his hands and arms in a state of tingling numbness, and feeling very heavy. For the first week he could use a knife and fork, but in the second he could only lean upon a table, and with his face low down contrive to carry some fluid food into his mouth by a spoon held between the first and second fingers of his right hand. A little later he could not do even this, but required to be fed with small quantities of liquid nourishment, which he swallowed with great difficulty. He complained of the feeling of a tight band round the belly just above the hips. Excitability to the induced current was lost in the legs and face, and greatly diminished in the thighs and arms. The interrupted constant current gave no reaction anywhere but in the muscles of the face, where the excitability to it was far above the normal. He could not lie down on account of his breathing. There was slight diplopia and very slight weakness of the bladder. Temperature 99°; pulse weak. No diphtheria, injury, or exposure to weather or metallic influence had preceded his attack, which commenced whilst he was carrying on his usual avocations.

Ten grains of iodide of potassium were given to him at once, and the dose repeated three times a day. Next day his condition had already somewhat improved, and in a week he could swallow a little solid food, could lie down in bed, and the muscles of his leg began to respond to a strong induced current. The dose of the iodide was rapidly

increased to 15, 20, 25, 30, 40, and eventually, in the middle of February, 60 grains three times a day, his improvement appearing to take place faster as the dose was enlarged. By January 25th he could close both eyes, and had acquired some power in his limbs, could swallow freely, and his breathing was nearly normal. On February 25th, when he had remained stationary for some days, I ordered him to be injected subcutaneously with five minims of Staub's solution of the chloro-albuminate of mercury, and next day with ten minims. Faradism was employed daily to his muscles. From February 27th to April 2nd he had ten minims of the mercurial solution injected daily, and from the latter date to the 19th twenty minims. From April 19th to May 21st twenty-five minims daily. On May 6th he could walk with help of two men, on the 13th with the aid of a stick, and he was discharged on May 21st able to walk pretty well as ever. I ought to say that he had been lame in the right leg since two years old from the consequences of what had evidently been an attack of infantile paralysis. His leg was wasted, and his foot in a state of talipes equino-varus.

This man had a sore fourteen years previously, for which he did not take mercury. It was accompanied by a bubo, the size of an egg, which was lanced, giving exit to blood alone. It was then poulticed, and afterwards matter was discharged. I found on examination that he had slight induration in the right groin, and a scar at the seat of the bubo. He had never had sore throat, skin eruption, or nodes.

I believe that the symptoms in this interesting case were due to syphilitic pachymeningitis about the basilar process and upper part of the spinal column, occasioning pressure upon the pons Varolii and at least the cervical por-

tion of the cord. A lesion of the pons alone might, no doubt, produce paralysis of the four extremities, but would not, according to my experience, give rise to two symptoms present in this case, viz. paralysis of respiratory movements, and the marked feeling of a tight constricting band around the belly. I ought to add that the patient resumed work in July, and has since continued to follow his employment, being able to get about, in spite of his old lameness, without the aid of a stick, except when he undertakes long distances. He describes a slight tingling as still remaining in his legs and arms, and some sense of fulness about the præcordial region, but he is otherwise in perfect health.

I have lately met with a case which occurred in the practice of Professor Wagner, which has an interesting bearing upon this one :*

Case XXIII.—A military man, æt. 35, had a chancre in 1862, followed in a few months by sore throat, later by skin eruption, and in 1866 by a swelling on the upper part of the spinal column, and on the left parietal bone. On May 5th, 1867, the patient complained of weariness in his legs, which could not next day be lifted out of his bed without trouble, and in the course of another day eventuated in complete paralysis. At this time the arms became also affected in a like manner, and the action of the bladder was

* 'Archiv der Heilkunde,' p. 105, Leipzig, 1869.

enfeebled. His temperature, pulse, and respiration were normal. The cutaneous sensibility was impaired in the lower extremities. From May 22nd the sensibility of his legs began to improve, and gradually a return of power took place in them, as well as in the arms, so that on June 21st the patient was able to stand, and with the help of an attendant to walk a little. A week later he moved briskly with the aid of a stick, and on July 1st without any aid. At the end of July he had quite recovered. He was treated with mercurial inunction, iodide of potassium, and Faradism to the muscles.

It occasionally happens that symptoms of impaired motion and sensation in a limb simulating some central lesion are found on examination to depend upon syphilitic tumour of some muscle, or local change in a joint or bone. As such cases are likely to mislead, I will briefly refer to three instances in which a close examination of the limb led to a discovery of this condition.

Case XXIV.—Several years ago, a male patient, past middle age, applied to me on account of persistent cramp in his thigh. So severe was this that he could only walk with the greatest difficulty and pain. On stripping the limb I found a great lump of thickening on one of the hamstring muscles, a good deal resembling a state of cramp, which, indeed, I took it to be, and applied a constant current on two or three occasions with the hope of relaxing it, but without effect. I then chanced to note a patch of serpiginous ulceration in a certain part of his skin, and this led me to conceive that the apparent cramp really consisted in a muscular tumour of syphilitic origin. Iodide of potassium confirmed

the diagnosis by clearing away the symptoms in a few days.

Case XXV.—A wife, æt. 48, was admitted into the hospital in October, 1872, with tingling in the tips of the fingers of the right hand, and loss of power in the same arm, so that she would frequently let things drop from her hand. She complained also of great pain and tenderness in the upper arm, at the back of the neck, and at the bottom of her spine, of weakness in her legs, and imperfect command of her bladder. She had great difficulty in lifting her arm. It chanced that I stripped and examined the upper arm, a precaution which one ought always to take, but frequently omits. The right deltoid muscle was thickened and hardened between the acromion process and its insertion as compared with the left, and it could not be pinched up and moved freely over the bone. It was painful when squeezed, but the skin over and about it was deficient in common sensibility. It was difficult to say where the thickening and stiffness began and ended, but it seemed as though the deltoid and perhaps a portion of the triceps muscles were not only themselves altered but that there was something which intervened between them and the bone, gluing them to it; and this was the more probable inasmuch as the functions of the circumflex and musculo-spinal nerves were to a certain extent impaired. This localised lesion explained the want of power and the altered sensibility of the arm. The electrical examination was interesting. I found that the muscles generally of this arm showed great diminution of excitability to the induced current, but this was very much the most marked in the deltoid. There was also considerable diminution of cutaneous electro-sensibility. The excitability to the intermittent constant current was not increased. There was pain and tenderness on pressure over the lower cervical and upper dorsal region of the spinal

column. The pains in this situation and also in the arm were much worse at night. The left arm was weak, and she was beginning to feel tingling in the tips of the fingers in this also. The lower extremities were partially paraplegic.

The patient was a not unhealthy looking woman, who had never suffered, she said, from sore throat or eruption of the skin, and had never had rheumatism or gout. The diagnosis made was syphilitic spinal meningitis with localised muscular and probably periosteal gummata, and she was put upon iodide of potassium (from ten to twenty grains) and faradism to the right arm. Under this she improved, but not to any remarkable extent, and after a month I stopped the specific treatment and gave her iron. But she did not do so well with this, and now began to complain of the feeling of a constricting band around the belly. On February 6th iodide was resumed in doses of thirty grains, and afterwards forty grains three times a day. She improved considerably for a time, but then remaining stationary I had her injected subcutaneously with Staub's mercurial solution, but this caused so much local irritation that it was only used some half-dozen times. The iodide was resumed, and in the spring I sent her to Finchley, whence she returned in May. She was then able to do much more than she could formerly with the right arm. She could lift it and use it generally, but could not put her hand behind her. The hardness about the deltoid had almost disappeared. The power of the bladder was much improved. There was great deficiency in the power of the right leg, and a painful sensation of an iron band across the back and hips. I lost sight of her after this till October last. There was then nothing wrong with the movement of the right arm, and the right leg was much improved, but she complained of the left leg being stiff, sore, and painful. On examination I found just such a thickening about the

lower portion of the left glutæus maximus muscle as had existed formerly in the right deltoid; the tumour was painful, but the skin over it anæsthetic, and the electrical condition also corresponded to those described in relation to the deltoid. She described both hands as feeling numbed and as though she were wearing thick gloves.

In a case which I am at present attending, and which has been referred to previously (see Case VIII), where there have been symptoms of extremely grave central cerebral lesions, a want of power in the right arm was complained of. I found that the elbow could not be voluntarily raised to more than an angle of about 45° from the side. The deltoid muscle was somewhat wasted, but of normal electrical excitability. A few applications of Faradism restored its volume, but although the elbow could now be lifted a little higher, yet neither by voluntary action nor by passive movement could the humerus be brought up nearly to its proper position. I found that this limitation depended upon adhesions in the scapulo-humeral joint, evidently consequent upon old synovitis, which would seem to have coincided in date with the commencement of periostitis about the insertion of the deltoid some eight months previous to my first seeing him.

A case which it is difficult to class with others came before me in June, 1873. From

the history and the result of remedies I look upon it as syphilitic, but I do not feel able to localise the lesion with any precision :

Case XXVI.—A wife, æt. 30 (married fifteen years, one child, which died when three weeks old, no miscarriages), applied complaining of what she called "twittering" pain all down the limbs of the right side, and in right half of the face and head. This pain was accompanied by numbness, and she could scarcely walk. The symptoms had persisted for one month. The palm of the right hand was sore to the touch. No unusual circumstances had immediately preceded the attack, but on inquiry I found that in the preceding summer she had squinted for three months. The left eye was affected, and she had been cured by taking medicine at an ophthalmic hospital.

The ophthalmoscope showed nothing abnormal. Under iodide of potassium, in doses ranging from ten to forty grains three times a day, she has almost entirely recovered. When I last saw her, a week or two ago, she had only to complain of a slight and unimportant tingling in the right foot. In all other respects she was perfectly well.

The age of this patient precluding brain lesion from degeneration, and the previous occurrence of a strabismus which had quickly yielded to medical treatment, gave the key to the specific nature of this disorder, and naturally suggested treatment the success of which goes far to confirm the diagnosis of its character.

In the following case any syphilitic infection was denied, but the character of the affection and concomitant circumstances pointed strongly to such an origin :

Case XXVII.—A labourer, æt. 31, applied in Feb., 1873,

with paralysis of the right lower extremity, of two and a half years' standing. The limb was greatly wasted and the foot could not be moved at all. It seemed that on getting up one morning he found his foot useless. No pain had preceded or followed the attack, and he had not been ill. Excitability to the induced current was lost in all the muscles below the knee, and very much diminished in the muscles at the back of the thigh, whilst it remained good in those on the anterior aspect of the thigh, in which also he retained voluntary power. The sensibility of the skin in parts corresponding to the paralysed muscles was greatly diminished. There was no increased excitability to the intermitted constant current. The seat of paralysis coincided completely with the distribution of the great sciatic nerve. There was no impairment of the functions of the bladder nor of the other leg. It appeared evident that there was a lesion of the sciatic nerve alone. Although he positively denied any syphilitic infection, the existence of a very ugly looking sore on the right leg (suggestive of a gummatous ulceration), which he had had for three months, made it likely that there had also been a gumma of the sciatic nerve, and he was accordingly ordered iodide and mercury. Under this treatment the sore rapidly healed, he gained a certain amount of power in the leg, and he described himself as feeling more than usually well in his general health, but in April he ceased to attend, so that I am unable to give the sequel of his case.

The tendency to relapse which strongly characterises syphilitic affections of the nervous system frequently lends important aid to their diagnosis. In the histories which I have hitherto related this peculiarity has not always

been prominent, for reasons easily explained. Either sufficient time has not yet elapsed since they were observed and treated for this tendency to manifest itself, or the sufferers have been lost sight of after more or less complete recovery of health, and their subsequent history remains unknown. The subjoined instances are examples of relapse after intervals of various duration, and on this account are worth noting. It may be said generally that paralysis of motion in early middle life (if not of hysterical origin), which are characterised by repeated relapses after prolonged intervals of immunity, point almost conclusively to a syphilitic basis for their origin.

Case XXVIII.—A single man was attacked at twenty-five years of age with a "stoppage" in his bladder and rectum, associated with great numbness and loss of power in his legs, so that he could scarcely stand. He was laid up in bed for two or three weeks, and was about four months altogether in recovering. Nine years afterwards, having remained well in the interval, he presented himself at the hospital, exhibiting almost complete paraplegia, with greatly impaired cutaneous sensibility of the lower limbs, having sometimes long delay in passing his urine, and occasional incontinence both of urine and fæces. He could not stand. He had suffered in early life (date unknown) from a discharge. At twenty-three he had dimness of sight in both eyes, for which he was treated at an ophthalmic hospital. The left eye recovered, but the right did not, and with it ever afterwards

he could only distinguish light from darkness. He denied having ever had sore throat or eruption on his skin. I found a scar as of old ulceration on the inside of one of his legs, and in the right eye the ophthalmoscope showed numerous small pigmented patches as of old choroiditis.

Case XXIX.—A man when twenty years of age had a sore, not followed by secondary symptoms. At twenty-nine he had a chancre, succeeded about a year afterwards by "something wrong with his skin, eyes, ears, and lips." At thirty-nine he got a weakness in his legs, which became gradually worse for two or three weeks, so that he could not stand. As he lay in bed he could not draw up his feet, and he completely lost sensibility in his legs. There was nothing wrong with his bladder or rectum. He lay in this powerless state for a week, and was then seized with cramps in his legs, which started of themselves. His illness lasted for a month or so. He had received no injury, and was unable to refer his condition to any cause. At fifty-seven he felt one day a strange sensation in his legs, especially the right, then a weariness, lost his senses for a moment, but was not convulsed, and found himself paralysed in the limbs and face of the right side. In this state I saw him at the hospital two months afterwards, and gleaned the above particulars of his history. He described a state of aphasia which had accompanied his attack, but had nearly passed away, though he still found himself at times somewhat deficient in power of expression. There was nothing apparently wrong with the kidneys, heart, or blood-vessels. Under specific treatment for a month he improved, and then, as too frequently happens in hospital practice, ceased to attend.

Case XXX.—A wife had partial left hemiplegia at thirty-eight years of age. At forty the attack was repeated, this

time with epileptic symptoms. At forty-six she had an attack of right facial paralysis, and a few days afterwards a third paralytic seizure on the left side. Violent headaches preceded each attack. She had suffered from bad ulcerated throat and skin eruption, had miscarried twice, and had lost the two children to whom she had given birth.

Case XXXI.—I saw on one occasion only, a few years ago, a military man, aged thirty, whose symptoms were prolonged insomnia, weariness, pains of long standing in both lower extremities, and who, seven years previously, had been affected with a sore, accompanied by a bubo, which suppurated. He told me that whilst under treatment for this he had an attack of left hemiplegia, together with paralysis of the left upper lid, so that his eye was closed, and that from this illness he recovered in about a month. He had never had sore throat or eruption of the skin. I could find nothing wrong with his circulatory apparatus or kidneys. He had not been exposed to the action of sunstroke. Early as was this attack—earlier, indeed, than in any case which I have verified for myself—the history leaves little doubt of its syphilitic origin; and to this cause also I think that his later symptoms, which arose after an interval of four or five years, must be referred.

Since I published this case in the 'Lancet,' another has fallen under my notice which may be compared with it:

Case XXXII.—A man, æt. 28, came to me in July, 1873, complaining of some want of power in the left arm. He said that eighteen months previously he one day suddenly lost power in the left arm for a few minutes, and let fall a water-

pot. This was followed by a sensation of pins and needles in the limb. He had no loss of consciousness. At the time of attack he was recovering from a primary sore for which he was under treatment. This was followed later by sore throat and skin eruption. He had felt no recurrence of the attack till the day I saw him, when a precisely similar seizure had taken place. The grasp of the hand was good, but he complained of a little numbness about the elbow.

I have already referred (in Chapter I) to the affections of intelligence, transitory or permanent, which constitute some of the most important features of intra-cranial syphilis. I may add here that it is not at all uncommon, in cases of comparatively early date, to find in association with paralysis of one or more cranial nerves or of the limbs on one side of the body, either a restlessness and excitability which are almost maniacal in character, or a condition of more or less prolonged stupor. In later cases, where repeated attacks of paralysis or convulsion during some years have given evidence of extensive cerebral disorganization, conditions somewhat allied to paralytic dementia, or to what is termed "general paralysis of the insane," are more common. The distinguishing clinical features have been already noted. In the first class it is probable that the membranes immediately investing the brain are

the seat of simple inflammation; in the second, the brain-substance itself has suffered, either by inflammation of its connective tissue or by interference with its nutrition and consequent softening induced by changes in the cerebral vessels, or by some structural alteration in the cortical layer brought about by the pressure of thickened and adherent membranes. The former condition, provided that suitable treatment is adopted early enough, is remediable and temporary; the latter, although often capable of some amelioration, always leads ere very long to a fatal termination without restoration of the mental faculties. I have selected the following cases as illustrative of these varieties of mental disturbance, although I must allow that the history of some of them leaves it open to objectors to deny that their syphilitic origin is absolutely proved. My reasons for so classing them are briefly these. The age of the patient, the history of syphilitic infection, the absence of indications of other causes (especially in the circulatory apparatus and kidneys) capable of producing the phenomena, the absence of neurotic family history, the mode in which they were influenced, at least temporarily, by specific remedies, and their general resemblance to well-attested cases

of other authors in which autopsies have been performed. With the mass of evidence before us which has been accumulated by such observers as Virchow, Wagner, Ricord, Lancereaux, Wilks, Hughlings Jackson, and others, the time seems to me to have passed for requiring such proof as dissection affords in cases the clinical features of which are alone sufficient to enable us to class them with those in which this source of confirmation has been attainable.

In the following case of right hemiplegia with aphasia, of syphilitic origin, which was treated by me in the hospital four years ago, the patient, a young man, showed such symptoms of mental aberration that we had some difficulty in retaining him in the hospital. For the first few days he was at times in a state of the greatest excitement, talking violently of persons injuring him, and occasionally falling for hours into a condition of deep stupor. Under the influence of specific treatment his mental symptoms quickly subsided, and in three months he was also in other respects quite well.

Case XXXIII.—A male, aged twenty-nine, single, applied at the hospital on August 17th, 1870, in the following condition:—He walks very lame, dragging the right foot, and

can scarcely lift the right hand. There is no loss of sensation in the limbs. With Duchenne's dynamometer the result with the right hand is 0, and with the left 25°. His manner is very odd, the face having a dazed look, and he displays great irritability towards his companion, a young woman to whom he is engaged. His speech is laboured, and he is often at a difficulty for the right expression. Whilst the *right* limbs are paralysed, the *left* side of the face is chiefly affected. On being told to shut his eyes, the left upper eyelid fails to cover the globe by one eighth. In laughing, the right angle of the mouth is drawn a little higher than the left. In whistling, the mouth is pushed over to the left. The tongue is protruded straight. He cannot eject saliva to any distance. There is no apparent loss of sensation on either side of the face.

On examination a scar is found half an inch in front of, and extending for an inch below the external auditory meatus of the left ear, and a line of cicatrices runs down the front of the left sterno-mastoid muscle. He says that he had abscesses on this side of the face and neck two years ago; that one in the situation first mentioned was lanced, and that "the water used to run from the scar for two months." At this time he first noticed that he could not close his left eye, and the inability has continued ever since.

He contracted syphilis two years and a half ago, followed by bad sore throat. His present attack (which had occurred three weeks previously to my seeing him) was preceded for a fortnight by great pain in the back of the head and over the left eye; and then one night, whilst in bed, he suddenly lost his speech, and the power of moving the right arm and leg, but did not become unconscious. The speech was absolutely lost for three or four days, and then gradually returned, but remained imperfect at the time of his appli-

cation. He was in the habit, it seemed, of using words erroneously—e.g., calling his watch, "hat."

He was admitted into the hospital, and ordered five grains of iodide of potassium three times a day. This dose was increased to ten grains after twelve days, then to fifteen grains after another week, and to twenty grains after another fortnight. During the first few days of his stay in hospital his manner was very flighty, and occasionally violent, and at times he was comatose for hours together; but these symptoms soon subsided, and he gradually improved also in the condition of his limbs.

He left the hospital on October 15th, but continued taking twenty grains of the iodide of potassium three times a day.

On November 16th he could use his arm freely, and the grasp of his right hand measured 30° on the dynamometer, as against 0 at his first examination. There was slight lameness of the right leg, but so little remained of his paralysis that he was at work again as a groom. Asked about his speech, he acknowledged that he still occasionally, but rarely, substituted words, and that his tongue would sometimes catch against his teeth in speaking. The facial paralysis of the *left* side, which had existed for two years, remained unchanged.

There is a point of special interest in this case beside the symptoms of intellectual disturbance, namely, the association of hemiplegia of the right side with facial paralysis of the left. The first glance at this patient gave rise to the idea that the case might be one of cross or alternate paralysis, dependent probably upon lesion of the pons Varolii. But there was a

feature which speedily threw doubt upon this view, and drew attention to the trunk of the left facial nerve. When the patient was asked to close his eyes, the left eyeball remained exposed to the extent of one eighth of an inch, the right eye being perfectly closed. Now, in that form of facial paralysis which is of cerebral origin, and which is constant to a greater or less extent in hemiplegia, the ability to close the eyes (at least simultaneously, if not always also independently) is never lost. This facial paralysis not being therefore of cerebral origin, inquiry and examination easily traced it to injury to the trunk of the nerve, as it passed through the parotid gland. It would seem that the injury took place in the body of the nerve before it divided, as the muscles about the mouth, as well as the orbicular muscle of the eyelids, were paralysed. Whether the damage had been done by suppuration or by the surgeon's knife did not appear, but at any rate the nerve had not been completely divided, as the paralysis was incomplete.

Case XXXIV.—A single man, aged twenty-eight, was brought to the hospital a year ago in a state of great mental confusion. He was suffering from paralysis of the right external rectus muscle, and partial paralysis of the left leg, which he could only just lift from the ground. His symp-

toms dated from six months previously. His friends, who considered him out of his mind, said that he was constantly talking of persons who were either dead or far from England, and holding imaginary conversations with them. He had a large cicatrix of old ulceration on one leg. I placed him upon specific treatment, but before he could commence it he fell into a state of coma which lasted three days. He then began treatment, with immediate and rapidly progressive improvement; and was soon able to inform me, in answer to questions, that six years previously he had been affected with a chancre, which had been followed by eruption on the skin. Under treatment he recovered his usual health in a few weeks.

Case XXXV.—A gentleman, aged thirty-eight, applied to me with thickness of speech, loss of memory, inability to write letters without numerous mistakes, noise in the ears, and deafness. He had no deficiency in muscular power. There was a history of hard, perhaps excessive, work. His symptoms, he said, had commenced three months previously with "biliousness," recurring every morning, accompanied by vomiting, heaviness, and several times a day a feeling as of blood rushing to his head, giddiness, singing in the ears, pains in the arms and legs, and cramps in the fingers, so that, during the attacks, he could not hold a pen. He never lost his senses. His habits were extremely temperate, and he had no recognisable lesion of the heart, blood-vessels, or kidneys. There was no family neurosis.

As regards his earlier history, it seemed that many years previously (I could not learn the date) he had suffered from syphilitic symptoms, including spots on the face, and bad sore throat. Not long after this (and ten years before I saw him) he had an attack in which, to use his own description, his mouth was "drawn down on the right side,

and he could not speak distinctly." About the same time he suffered from pain in the right eye, and his sight was affected. He remembered that he was said to have iritis, and that he took medicine which made his gums sore. His face was paralysed for three weeks, and it was three or four months before he could speak distinctly. Since then he had enjoyed good health until the attack for which he sought my advice.

I prescribed mercury and iodide for him, and he immediately began to improve. His speech became clearer, he was able to write with but few mistakes, and lost all the other symptoms of which he had complained. I still, however, noticed something queer in his manner, and his replies to questions were wanting in logical accuracy. After two months' treatment, although I considered his condition as by no means satisfactory, he returned to business, but found himself incapable of continuing it after a few days. I then lost sight of him for five months, during which, I believe, he underwent treatment elsewhere. At the end of that time I was called to see him at his home, and found him in a state of restless excitement, with tremulousness of features and mental delusions. He was by turns tender and affectionate to his family and violently harsh to them. His manner was full of suspicion, and he told me of persons in the house who were following him about, making remarks and laughing at him. It became necessary to send him to an asylum, where he died after ten days, during which he had been extremely violent and had suffered from convulsions.

Case XXXVI.—A clerk, aged forty-six, married six years, applied at the hospital in January, 1872, with imperfect right hemiplegia, occasional incontinence of urine and fæces, and considerable mental disorder. It seemed, from his

wife's account, that in November, 1870, he had a succession of fits in one day, which were followed by prostration, and kept him from his employment for a month, when he returned and worked fairly well at his duties. At times, however, he seemed lost, called people by wrong names, and frequently expressed an opinion that "Michael, the paperman, was flying about his head, and making him ill." In the December and January following he suffered very much from pain coming on night after night in his head. In July, 1871, he had another batch of fits, ten in number, and it was a month before he rallied and became quite conscious. About this time, it appears from his wife's account, he had a succession of "bumps" upon his head, often as big as a walnut, and lasting sometimes a few days, but occasionally much longer. They were very tender to the touch, and were doubtless periosteal nodes. A month afterwards there was again a recurrence of fits, on the cessation of which he returned to his office, and resumed duty until a fortnight before his visit to me, but it appeared that he had really been useless there since his attack in July. It was at that time that his hemiplegia had been first observed. He complained of occasional pain in the head, and was described as sleeping very much in the day, and being very restless and unmanageable at night. I ascertained from him that he had first suffered from venereal disorder in 1840, and since then had been affected on no less than seven occasions with primary sores, the last dating eight years back. He had never had skin eruption, but had suffered from bad sore throat. In the beginning of 1870 he had some ulceration of the scrotum, which remained open for three months, and during this time he felt very weak and low-spirited. I ordered him full doses of iodide, under which at first he improved considerably, obtaining rest at night, regaining power over the bladder and rectum, and

becoming clearer in his intellect. Subsequently mercury was given to him. The improvement, however, which was at first manifested, did not last, his mind became more and more fatuous, and in April he was sent to an asylum, where he died about a twelvemonth afterwards.

Case XXXVII.—Six years ago a male patient, aged twenty-eight, was sent to me, suffering from imperfect left hemiplegia. This condition dated from an attack four years previously, in which, as he sat by the fire, his left leg worked violently up and down, and he fell into the fender, without, however, losing consciousness. He then found that his face was drawn to one side, and there was a great loss of power in the arm and leg of the left side. He gradually recovered to a certain extent, and resumed his occupation three or four months afterwards, but never felt quite well. I advised that he should be treated with bichloride of mercury. In November, 1867, he again had a fit, and this time was unconscious for thirty hours. On regaining his senses he found himself paralysed in the right arm, and aphasic. Before this attack he had suffered from partial loss of sight. In January, 1869, I saw him again. His grasp was then equal on each side, but the left leg was stiff and halting. In 1870 he had a third attack, in which his left leg became powerless. In November, 1871, he was affected, for the fourth time, with a paralytic seizure. On this occasion he became paraplegic and lost his consciousness for so long a time that he remembers little or nothing that occurred during many months.

This man had a syphilitic sore in 1860, for which he was salivated, and a few months afterwards a pimple-like eruption, which lasted, as he says, for years. He also suffered from ulcerated throat.

Last year I had the opportunity of again examining this patient. Since I had last seen him, he had been on one occasion for several months in a hospital, where, so far as I could make out, his mind had been much affected. On examination I found partial paraplegia, diplopia from imperfect power of moving the right globe, and contraction of the right pupil. He could grasp very strongly with either hand, and his speech was not affected. Sensibility was everywhere perfect. The right optic disc was partially atrophied, and there were evidences in this eye of old choroiditis. His memory, he told me, was very imperfect, but he answered my questions for some time with very fair intelligence and quite to the point. Presently, however, *apropos* of nothing connected with the subject, he gravely remarked, "If the Bible is true, I am the prodigal son, and the future king of England," and went on to announce that the Holy Ghost was in his body. He also assured me that he constantly saw a black dot and a hair following him about, evidently to watch him, and believed that they came from the hospital in which he had been a patient.

CHAPTER IV.

On the Prognosis and Treatment of Syphilitic Nervous Affections.

As a broad general rule, I think it may be considered that the prognosis in syphilitic nervous affections of an important character is much more favourable than in lesions with analogous symptoms which do not depend upon this specific cause. The immediate tendency to a fatal termination in cases the nature of which has been recognised sufficiently early, and for which appropriate treatment is applied, is comparatively slight. The effect of remedies in improving the patient's condition is usually of a remarkable character, and quite beyond anything which is seen in the ordinary treatment of nervous affections arising from indifferent causes. So much may, doubtless, be asserted with confidence, and yet there are modifying circumstances, of which I shall presently speak, which serve to lower considerably the hopeful tone of such a prognosis when it has to be applied to the patient's future,

instead of the particular attack under which he happens to be suffering.

Cases of nervous affections of this class are of favourable prognosis in proportion as the date of the constitutional affection at which they occur is early, and as the lesions are of a small and local character. Just as it is a matter of common experience that the secondary skin eruptions will subside and leave no trace of the affection, so it is reasonable to expect, and in practice it is found, that those affections of the membranes, or of the fibro-osseous canals which, like the skin eruptions and the sore throat of the same period, are of simple inflammatory character, will disappear without resulting disorganization. But when the lesion is caused by the presence of gummata in the membranes, interstitial neuroglia, or vessels, we have to deal with conditions much more likely to cause disintegration of important parts. Just as, in the stage corresponding to this, the affections of the skin, throat, palate, and osseous system, are apt to leave behind them permanent traces in consequence of ulceration and suppuration, so the delicate structures of the nervous system are likely to receive impressions which are lasting in their effects. Moreover, at this period, even when, under

treatment, the gummata are more or less absorbed, there is a great tendency to a reproduction of this new formation, and it often happens that this takes place with ever increasing rapidity. Treatment may cause the symptoms to clear off with much rapidity, and yet the apparent prospect of a complete cure turns out to be illusory.

As is well known, however, it does not happen that infected persons who have passed through secondary symptoms always exhibit afterwards tertiary phenomena. These may never occur. It is evident, therefore, that a patient who has recovered from nervous affections which, in their simple inflammatory character, may be associated with the changes belonging to the secondary period, need not necessarily be subject later on to those belonging to gummatous formation. But the same doubt as to the future which prevents us from predicting of a patient who has lost his secondary skin eruption, that he will not be troubled with symptoms of a tertiary kind, is sufficient to make us guarded in our prognosis after a subsidence of early nervous affections. It is pretty well agreed that treatment removes the results of syphilis, not the dyscrasia itself, and so when the nervous affections have been of a

character which enables us to refer them to the presence of gummatous formation, we are never in a position to say that they will not be repeated. On the contrary, it is only fair to expect that there will be a recurrence, and it is our duty, under these circumstances, to urge long-continued treatment, and when this has been dropped for a time, a resumption of it on the slightest appearance of relapse. By this means we may at least lend important aid to the patient by promoting the absorption of new formations as soon as they begin to declare themselves. Meantime we have always to hope that time will gradually bring about such a change in the state of the constitution that the hazard of a relapse may grow appreciably and constantly less. But, with all this, it would be futile to deny the fact that in too many cases recurrences will take place, and, in spite of treatment, leave the patient, after each attack, in a worse condition than he was before. However, this is by no means always the case, perhaps even not most commonly, and there can be no doubt that as a general rule, supposing the disease to be recognised, and proper treatment promptly and systematically given, the prospects either of eventual recovery or of a fair amount of health are extremely encouraging. Should

the syphilitic basis of the disorder be overlooked it constantly happens that most valuable time is lost, and the sufferer drifts into a perfectly hopeless condition. It is then the immediate results of syphilis which we endeavour to treat, not the irreparable disorganizations of nervous structure which those resulting formations have caused, and against which our specific remedies are of course worthless.

So much has been incidentally said in this work respecting the treatment of diseases of the nervous system dependent upon syphilis that but little remains to be added upon this point. Ricord's views as to the most appropriate treatment for the different stages of constitutional syphilis may be thus epitomised. In the primary stage, mercury. For secondary symptoms, when they are uncomplicated, mercury; when they are blended with those of a tertiary character, the treatment is a mixture of mercury and iodide of potassium. In the tertiary stage he relies upon iodide of potassium. And this scheme would probably represent very fairly the views of those who have had large experience of the disease. In the class of cases, however, with which we are specially concerned, as I have before described, it is not by any means always possible to say whether

the symptoms of nervous affection which are observed belong to the secondary or tertiary stage. Our treatment, therefore, must be to a certain extent tentative. My own plan is always to commence, in a case of this kind, with iodide of potassium. In a majority of instances this drug, which will often require to be pushed to large doses, will be sufficient to bring about a cure of the symptoms, or at least a very important improvement. If, however, after three or four weeks of such treatment, employed with sufficient boldness, the improvement is not marked, I give mercury, which will sometimes then act with remarkable effect. The preparations which I chiefly employ are the perchloride and the red iodide; and I do not know that preference, for any particular reason, is to be given to one or other of these forms. As a matter of practice, I think I have found that the red iodide, given in solution of iodide of potassium, is less apt to cause irritation of the abdominal organs than the perchloride. It is seldom that either causes salivation. Where it is desired to produce, and to keep up for some time, a slight action upon the gums, this can be effected in the usual manner by appropriate doses of blue pill or grey powder. The French very largely employ the green

iodide, a preparation but seldom used in England, probably because it is unstable, some biniodide being apt to form in it when it has been long kept.

A word as to the dose of iodide of potassium. After a good deal of hesitation, and trial of various quantities in a considerable number of cases, I feel convinced that in syphilitic affections of the nervous system it is often necessary to employ doses of this drug which are far beyond those usually ordered. In several instances I have observed something of the following kind to take place. An improvement up to a certain point has been produced by doses of iodide of from ten or fifteen to twenty grains three times daily. The patient has then remained at this stage, or progress has been very slow, whilst he continued to take this amount. On increasing it, however, by rapid steps, to thirty, forty, sixty, or even ninety grains three times a day, the case has responded immediately and *pari passu* to the additional quantity of the drug. I had two patients in the hospital last year who were striking instances of this effect. In each the dose was pushed gradually to ninety grains three times a day with marked beneficial effect, and I may add that the patients themselves expressed an

unhesitating opinion upon this point. There is nothing new of course in the employment of large doses. Forty years ago the late Dr. Elliotson used to give as much as two drachms three times a day,* and with remarkably good results. But of late years, as a general rule, the dose has been so moderate that to many practitioners the employment of ten grains at a time is only gradually arrived at, and with some caution. No doubt in a very large number of cases a comparatively small dose is all that is required, and in practice, therefore, it is well to begin with a dose of ten grains, and increase it if necessary. I feel tolerably sure from repeated experiments that the iodide may be used, if occasion require it, as freely as the bromide of potassium, and that the opportunity of doing great good in syphilitic nervous affections is nearly as often missed by the employment of inadequate doses of the former drug as used notoriously to happen in respect of epilepsy from the exhibition of too small doses of the latter. Symptoms of iodism, very like those of severe nasal catarrh, will occasionally present themselves, but just as frequently, so far as I have seen, when the amount of the salt employed is small as when it is considerable, and it is very

* 'The Lancet,' Feb. 12th, 1838.

rare indeed that the use of the drug has to be given up on this account. Occasionally, too, a kind of large pustular acne is a disagreeable consequence of its administration, but this is not so common as where the bromide has been given. I often see the symptoms of iodism as well as this condition of the skin subside whilst the patient continues to take the iodide.

There is something quite remarkable in the influence of the iodide of potassium in cases of this class. The drug seems to act almost as a food to the patient. It is not only that he finds under its employment that the special nervous symptoms for which it is prescribed are beneficially influenced, but he describes a condition of *bien être* as accompanying its use which makes him unwilling to give it up. I know of nothing in all therapeutics more extraordinary than the rapid effects of iodide in improving the conditions of these patients except it may be perhaps the influence of lemon juice in scurvy.

Conditions of anæmia, which seem to demand a treatment by iron, are often found to be uninfluenced by that metal, whilst a few doses of iodide will bring about a surprising improvement in the colour of the patient and his general tone. The common idea of the "lowering" action of the drug would seem to

be incorrect, at least in cases where its employment is demanded, and patients will constantly assert that on leaving off the iodide even for a few days they perceive so marked a diminution in vital energy that they are only anxious for its resumption. And this in spite of the local inconveniences belonging to a tongue thickly covered with grey fur, and an accompanying metallic taste, which are indications that the system is saturated with the drug.

I am in the habit of administering the drug simply dissolved in water, and have not found that any advantage is gained by the addition of ammonia or vegetable bitters. It has been alleged that the former prevents the occurrence of iodism, and that, by conjunction with the latter, the digestive system is less likely to be deranged by the iodide, but my experience has not confirmed this statement, although I have repeatedly tried the experiment.

As regards the employment of mercury I do not think that a condition of cachexia should necessarily stand in the way of its use. One very often sees a surprising improvement in the aspect and state of nutrition under its administration. It is not possible, however, to indicate with anything like precision the class of cases in which it should be pushed in preference to per-

severance with the iodide. As a general rule I should say that supposing the diagnosis pointed very strongly indeed to a syphilitic origin of the nervous affection, and that this, although beneficially influenced by iodide, yet persisted in spite of the employment of large doses, it is advisable to try the effects of mercury. I have already referred to some of the forms in which this drug may be given. I may add that in certain cases the use of the calomel bath, as perfected by Mr. Henry Lee, offers a safe although somewhat wearisome mode of employing the drug.

In that condition of very advanced cachexia which is associated with symptoms of lardaceous changes, neither iodide nor mercury will prove of any service to the patient.

It is to be desired that some form of subcutaneous injection of mercury may be discovered which will be free from the objections at present belonging to this method. The common occurrence of small abscesses at the seat of puncture is a fatal objection to most of the solutions which have been tried. In three cases I have used the solution of the chloroalbuminate of mercury as introduced by Dr. Staub, of Paris,* but I am not satisfied with it.

* The following is Dr. Staub's formula quoted by the

In each patient the injection was immediately followed by great pain at the seat of puncture, and the formation of a hard swelling which persisted in one case during several weeks, and in this instance was accompanied by continuous pain. In the other two cases the pain ceased after about half an hour, the swelling remaining. In none of these, however, was there any suppuration. It is evident that if a solution of a salt of mercury could be met with which would not give rise to local irritation, the subcutaneous method, from the certainty attainable by it as respects the quantity of the drug employed, would be a most valuable means of treatment.

It will often be found that the muscles paralysed from lesion of the nerves supplying them

'Lyon Medical,' June 9th, 1872. I have not been able to meet with the original pamphlet:

	Grammes.
1. Hydrarg. Bichlorid. . . .	1·25
Ammonii chloridi	1·25
Sodii chloridi	4·15
Aq. destill.	125·0
Dissolve and filter.	
2. White of one egg, water enough to make a solution of 125 grammes—filter.	
Mix the solutions and filter. One gramme of the liquid contains 5 milligrammes of mercury—medium dose, one centigramme daily in two injections.	

fail to respond, or respond but imperfectly, to the induced electrical current. Under these circumstances it will sometimes happen that the intermitted galvanic current from a few cells of Stöhrer's or Foveaux's battery will readily cause contractions, and advantage may be taken of this reaction to exercise the muscles, and thus contribute to their nutrition. Where the induced current produces contractions it may be employed with the same object. The paralysis resulting from syphilitic nervous affections is so frequently of a peripheral character that the same objection does not apply to the early use of electrical treatment in these cases as in those which are dependent upon central lesions. I have in several instances seen a rapid improvement in the power of the external muscles of the eye by the employment of the induced current. Owing to the pain which attends touching the conjunctiva with the rheophores, these should always be applied over the closed lids.

I do not know that much more can be said as to the therapeutics of these disorders. Whether iodide of potassium or mercury, or both be employed, a very long continuance of the treatment seems always to be required, and an immediate resumption of it at the slightest

indication of relapse. In certain cases, arsenic and iron may be used with advantage in addition to these means; bromide of potassium may be added in cases of convulsion, and cod-liver oil will always be useful in cachectic conditions; but essentially the treatment of this class of nervous affections is the treatment of the constitutional disorder.

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